

$$\begin{array}{r} 70 \\ 76 \end{array} \quad \begin{array}{r} 22.8 \\ 7 \\ 15 \\ 195 \\ 180 \\ 375 \end{array}$$

$$\begin{array}{r} 88 \\ 44 \\ 6 \end{array}$$

11
11111
111

$$\begin{array}{r} 275 \\ 195 \\ 470 \\ 360 \\ 110 \end{array}$$

$$\begin{array}{r} 10.0582 \\ 1523 \\ 10.2105 \end{array}$$

$$\begin{array}{r} 341 \\ 180 \\ 161 \end{array}$$

$$\begin{array}{r} 47.13\frac{1}{3} \\ 4056\frac{2}{3} \end{array}$$

$$\begin{array}{r} 9 \\ 4 \\ 10 \end{array}$$

$$\begin{array}{r} 26 \\ 12 \\ 9 \end{array}$$

$$\begin{array}{r} 237 \\ 180 \\ 57 \end{array}$$

show TTH
rain 111
wind 111

$$\begin{array}{r} 10 \\ 17 \\ 27 \end{array}$$

$$\begin{array}{r} 12 \\ 41 \\ 40 \\ 20 \end{array}$$

In both wires

$$20 \text{ meters} = 19\frac{1}{2}$$

$$40 \quad " \quad 39$$

Lower wire

$$40 \text{ meters} = 20$$

$$20 \quad " \quad = 10$$

$$10 \quad " \quad = 5$$

$$2 \quad " \quad = 1$$

Telemeter 30 - between

$$\text{both wires} = 100 \text{ ft}$$

$$60 \text{ ditto} = 200 \text{ ft}$$

$$30 \text{ between lower wires}$$

$$= 200 \text{ ft}$$

$$60 \quad " \quad \text{lower wires}$$

$$400 \text{ ft}$$

$$15 \text{ between lower wires} =$$

$$100 \text{ ft}$$

$$5 \text{ between lower wires} =$$

$$33 \text{ ft } 5 \text{ in}$$

$$10 \text{ do} = 66 \text{ ft } 10 \text{ in}$$

$$\text{or } 20.25 \text{ on telemeter}$$

$$\text{between both wires} = 67.6$$

Oct 24 1871

Am.

A

B

Bailey's Δ

0

180

Rocky Pt.
S $9\frac{1}{2}$ W

41.33.40

221.33.40

41.33.40

221.33.40

41.33.20

221.33.40

Highest Pt. Amaknak I.

S 19 W

50.58

230.58.20

Planet ~~Star~~ Altitude of Signal
Leads W. $33\frac{1}{4}$ S 1 foot

Observations from Spit Head Δ

Wahkta Δ

0

180

A $2\frac{1}{2}$ E ($3\frac{1}{2}$)

North Head

15

15

34.15

214.35

A $3\frac{1}{2}$ E

34.15.40

214.15.40

34.15.40

214.16

North end Middle Bluff

A 50 E

South end in line with Pinnacle

Pinnacle

55.56.20

235.56.20

A 59 E

55.56

235.56.20

Correction

+ 10"

"

+ 40"

"

+ 40"

Back sight on Priest Rock reads

A 50.0 E

B 230.00 S

Cor. - 2'.00"

"

0

"

0

Cor.

0

"

- 20"

	A	B
Pinnacle	55.56.20	235.56.20
Bailey's Δ	99.45	279.45.20
S 77 E	99.45.00	279.45.00
	99.44.20	279.44
	"	"

Bailey's	0	180
S 77 E		

Church	80.59	266.58.40
S 10 1/4 W		

Rocky Pt.	97.04	277.04.20
S 20 W	97.04.40	277.04.20
	97.04	277.04
	"	"

Rocky Pt.	0	180
S 20 W		

Round Top	32.24	212.24
S 52 3/4 W	32.24	212.23.40
	32.23.40	212.23.40
	"	"

Round Top	0	180
S 52 1/2 W		

Pulpit Rock	102.44	282.44
N 25 W	102.43	282.43.20
	102.43	282.43.20
	102.43	282.43.20

	A	B
Pinnacle	55.56.20	235.56.20

Cor. = 20"

" = 20"

" = 40"

Cor = 00

" 0

" - 10"

" - 40"

Cor. + 20"

" 0

" 0

Cor + 20"

" + 20"

" + 20"

" + 20"

Pulpit Rock 0 180
 A 25 W

Ulaakta Δ 28,05.40 208.05 Cr. +20"
 ✓ 28,04.40 208.05 "
 28,04 208,04.20 "

Split Top Mt.
 A 30 1/2 E

Highest Pt. of Ulaakta S
 S 27 1/4 W

Center of Signal
 A 57 1/2 W Distance 21 E

Weather fine & clear - Ther. 45.
 Return from Spit head to vessel at
 2.30 just as rain comes on -
 29.44.

Wednesday Oct. 25, 71 -

Observations from Δ K

Edge of Bank bearing
 A 134 E from Δ K

Edge of Bank
 A 13 West Vert. 12° 22'

$$\begin{array}{r} 60 \overline{) 86 (143 \frac{1}{3}} \\ \underline{60} \\ 260 \\ \underline{240} \\ 200 \\ \underline{180} \end{array} = 286 \frac{1}{3} \text{ in} \\ 286 \text{ ft } 8 \text{ in}$$

86 between both wires

$$\begin{array}{r} 30 \overline{) 71 (236 \frac{2}{3}} \\ \underline{60} \\ 110 \\ \underline{90} \\ 200 \end{array} = 236 \frac{2}{3} \text{ in} \\ 236.8 \text{ in}$$

ΔA
N $36\frac{1}{2}$ E

A — B
0 180

ΔB
A $19\frac{3}{4}$ W 304.01 124.00.40

ΔC
N $34\frac{1}{2}$ W 289.26 109.25.40

Rock off West Head
A $27\frac{1}{2}$ W

W. Bluff of Amaknak I. North
A $29\frac{1}{2}$ W

A end Chena I.
A 41 W

Δ East

Strong wind which
will not admit of much
observation.

Morning clear & fine but with
high wind. P.M. cloudy -
29.94 - 45 -

150
124.00.50

55.59.10

179.59.60
109.25.50

070.34.10

By telescope $2\frac{1}{2}$ above line
from bottom - 30) 142.5 (475-5
ladder wires 150

475
2
950 ft

225
210
150
150

Thursday Oct. 26. 1891
 from round hill S of mouth Little Bay
 N. E. Head in line with outer edge
 of spit head & two principal bluffs
 or points of middle Amaknak.

Observation from Δ East,

Δ West - by telemeter 97 between
 lower wires.

$A 83 \frac{3}{4} W$

30) 97 (323 $\frac{1}{3}$
 90

Hill opposite.

$E 3 A$

20 646 $\frac{2}{3}$
 60
 100 646 ft 8 in
 90
 10

Crest of split top Mt.

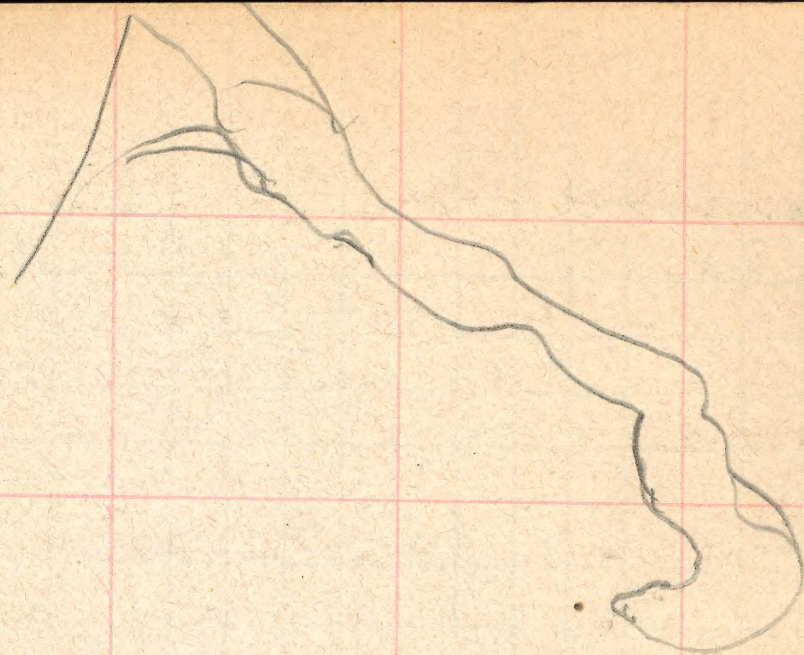
$A 32 \frac{1}{4} E$

ΔK 25 above hinge from
 below - lower wires. 15165 1100
 $A 56 \frac{3}{4} E$ 1100 ft

Highest Pt. S. Head Sandbar Bay
 $A 51 \frac{1}{2} E$

Middle Pt. Sand Ridge South
 $A 60 \frac{3}{4} E$

Highest Pt. S. end of Ridge
 $A 71 E$



Pyramid Mt. Highest Pt.
S $31\frac{1}{4}$ E

East Knob, S of Little I, on Amaknak
S $9\frac{1}{2}$ W

Middle Is. (Highest Pt. Amaknak S.)
S $49\frac{1}{2}$ W

West Is.
S 62 W

ΔI 17 above hinge from
bottom, S 10 E lower wires,

Beach High water mark
(N of K) bears N $45\frac{1}{4}$ E

Bluff on N. Side Entrance
N $45\frac{1}{4}$ $45\frac{3}{4}$

First Bluff S E ΔI . Reads
on telemeter 60 above hinge from
below between lower wires,
S $68\frac{1}{2}$ E

Rock (Is.) on N.E. Pt. Amaknak S.
between lower wires corresponds
with hinge & ~~hinge~~ wires S short
of the top. S $34\frac{3}{4}$ E,

$$\begin{array}{r} 30 \overline{) 157} \quad 5-33\frac{1}{2} \\ \underline{150} \\ 70 \\ \underline{60} \\ 100 \end{array}$$

1067 ft-4 in

$$\begin{array}{r} 30 \overline{) 200} \quad 666\frac{2}{3} \\ \underline{180} \\ 200 \\ \underline{180} \\ 200 \\ \underline{180} \\ 20 \end{array}$$

1933 ft-4 in

$$\begin{array}{r} 30 \overline{) 275} \quad 916\frac{2}{3} \\ \underline{270} \\ 50 \\ \underline{30} \\ 200 \\ \underline{180} \\ 20 \end{array}$$

1933.4 in

ΔH 85 above hinge
from bottom between both wires
S 12 E 750 ft 4 in

ΔC 77 above hinge from
below between both wires
S 45 W 723 ft 4 in

1 Sledge off Small I. 37 between
both wires. 125 ft 4 in
S, 13 W

2 Sledge off Small I. (another)
67 between both wires
S 36 W 223 ft 4 in

3 Eastern Pt Small I. (Rocks) 29
between both wires
S 75 E Vert 8° 06' 93 ft 8 in

4 Rock 36 between both wires
A 15 1/2 W Vert. 6° 37' 120 ft

5 N. Pt. Small I. 140 between both
wires A 44 1/2 W 466 ft 8 in

Obs. across I. from preceding 53
between tower wires.
A 17 E. Theodolite about 30 ft.
back of beach stone line.

30) 225 1750 ft 4 in
240
150
250
100
90
10
23 1/4 in

80) 217
216
70
100
90
10
123 ft 4 in

30) 37
30
50
160
100
100
223 ft 4 in

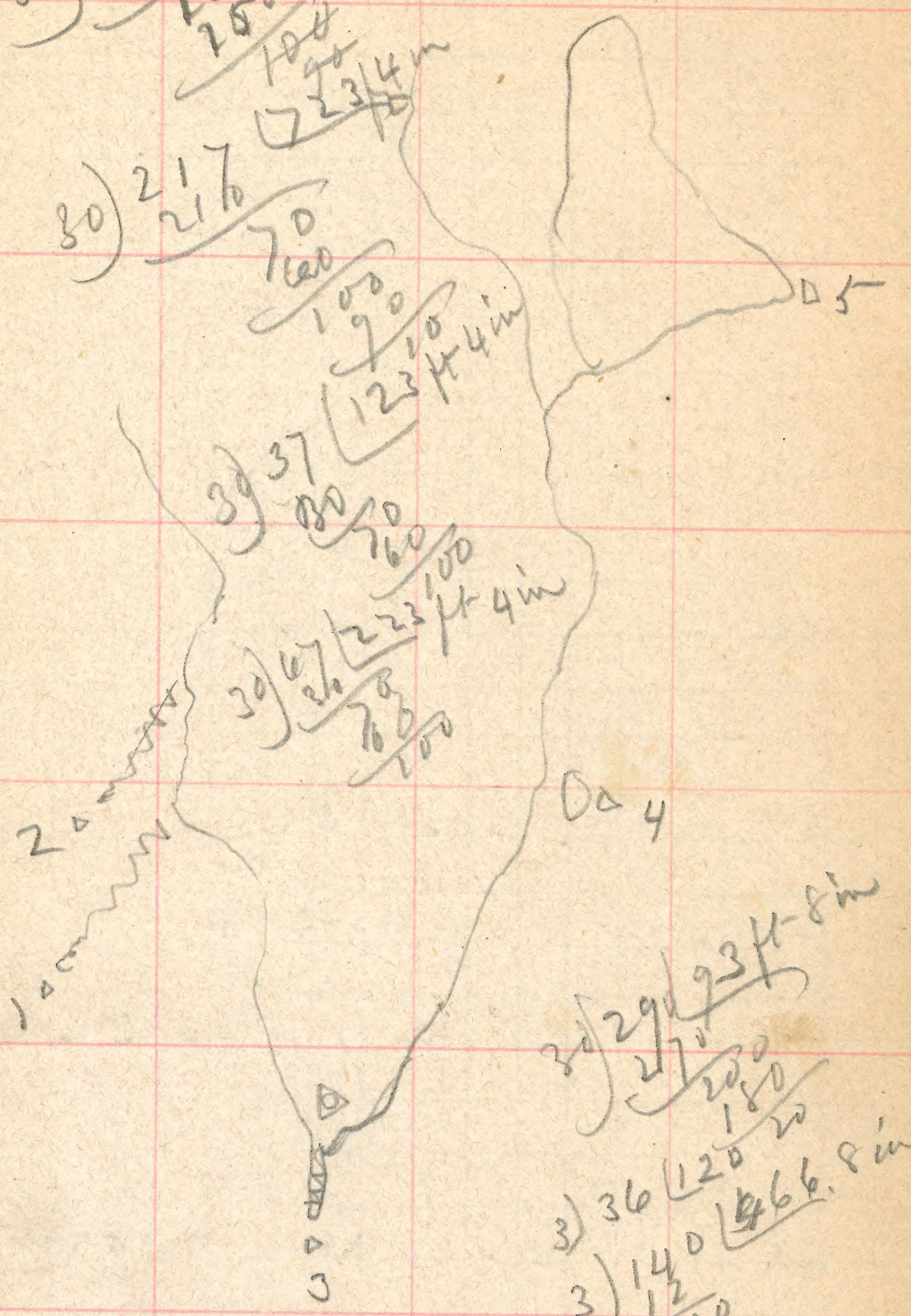
30) 47
24
78
100

30) 290
270
200
180
20
93 ft 8 in

3) 36
120
140
12
20
18
29
18
466 ft 8 in

3) 5-3
3
23
21
20
18
176 2/3
353.4 in

3) 30
20
18
29
18
3.4 in
width of Small I.



Obs. from Δ West

Same Δ as before 112 between both
wires: probable distance to be added
about 10 ft. $383\text{ ft } 4\text{ in}$
 $N. 54\frac{1}{2}^{\circ} E$ $Dist. 40$

Top of trees on ^{North} Middle Island
 $N. 2^{\circ} W$

Rock (Separate from small Δ at
High Water) 88 between both wires
 $N. 1\frac{1}{2}^{\circ} E$ $293\text{ ft } 4\text{ in}$

ΔD 65 above hinge from
bottom between lower wires.
 $N. \frac{1}{2}^{\circ} E$ $136\frac{1}{2}\text{ ft } 8\text{ in.}$

Bluff between D & E 35 above
between lower wires ^{hinge}
About $N. 8\frac{1}{2}^{\circ} W$ $116\frac{1}{2}\text{ ft } 8\text{ in.}$

ΔE 75 above hinge from
below between both wires
 $N. 51\frac{1}{4}^{\circ} W$ ~~$1423\text{ ft } 4\text{ in}$~~
 $716\text{ ft } 8\text{ in}$

Rocks at end of beach 87
between both wires above hinge
from below
 $N. 71^{\circ} W$ $756\text{ ft } 8\text{ in}$

$$\begin{array}{r} 30 \overline{) 112} \quad 373\frac{1}{3} + 10 = 383\text{ ft } 4\text{ in} \\ \underline{90} \\ 220 \\ \underline{210} \\ 100 \\ \underline{90} \end{array}$$

$$\begin{array}{r} 30 \overline{) 88} \quad 293\frac{1}{3} \\ \underline{60} \\ 280 \\ \underline{270} \\ 100 \end{array}$$

$$\begin{array}{r} 30 \overline{) 205} \quad 583\frac{1}{3} \\ \underline{180} \\ 250 \\ \underline{240} \\ 100 \end{array}$$

$$\begin{array}{r} 30 \overline{) 175} \quad 583\frac{1}{3} \\ \underline{150} \\ 250 \\ \underline{240} \\ 100 \end{array}$$

$$\begin{array}{r} 30 \overline{) 215} \quad 716\frac{2}{3} \\ \underline{210} \\ 50 \\ \underline{30} \\ 20 \end{array}$$

$$\begin{array}{r} 30 \overline{) 227} \\ \underline{210} \\ 170 \\ \underline{150} \\ 20 \end{array}$$

S. End of Beach 22 above
hinge from below between
tides waves 1080 ft
S 66 3/4 W

ΔF 77 above hinge from below
between both waves
S 46 1/2 W 723 ft 4 in

ΔC 142 above hinge from below
between both waves
S 14 1/2 E 606 ft 4 in

Rain comes on and prevents
further observations
Ther. 45.5 Bar. 29.784
morning obs for time but clouds
in P.M. prevent equal altitudes
being taken. Rain & wind from NW.

Friday Oct 27.

Heavy snowstorm all day 29.504
Ther. 42.5 NW wind

Saturday Oct. 28

Rain & squalls of snow N.W.
29.872 Ther. 40.

Sunday Oct. 29

High wind with showers of rain. Ther
42. Bar. 29.888. S.

$$\begin{array}{r} 30 \overline{) 62} \overline{) 540} \\ \underline{150} \\ 120 \\ \underline{120} \end{array}$$

$$\begin{array}{r} 30 \overline{) 217} \overline{) 723} \frac{1}{3} \\ \underline{210} \\ 70 \\ \underline{150} \end{array}$$

$$\begin{array}{r} 30 \overline{) 82} \overline{) 606} \frac{2}{3} \\ \underline{180} \\ 200 \\ \underline{180} \\ 20 \end{array}$$

Oct. 30. Monday —————

Observations from S. Point
Amaknak Is. Δ II
A B

ΔH 0 180
 Selenometer 85 between back wires,
 5744 W

Black Knight 6 shgs
S 59 1/2 E 13 between both
pines

Δ West 9.28 189.25.40
 A 49 1/2 W

Δ West 0 180
at 49³ 20

ΔI 26 ft between rock lines
N 39 3/4 E Corralton O

7 1/2 ft. bank at x
1 6 3/4 E 25 3 bottom
back wire.

Edge of bank at XX 235 below
lock wire. Connection - 20" Z -



These cross stations were about 10 ft from station edge

A B
 ΔK 67.15.20 247.15.40
 A 17 1/2 E

Edge of bank at XXX 18 ft between
 lower wires,
 S 77 1/2 E Corr. - 20"

ΔD 24.17.40
 A 25 1/2 W 29.17 204.17.20

Edge of bank at XXXX 29 ft
 between lower wires.
 S 60 E, Correction 0

$\Delta East$ 21.43.40 201.44
 A 28 W 21.44.40 20.4.20
 at Bluff Amaknak
 A 22 1/2 W

ΔC
 A 10 W 39.51.20 219.51.20

ΔB
 A 2 W 47.45.40 227.45

ΔC
 39.51.40 219.51.20
 Corr. + 40'

Eastern Rock at S. Pt. Amaknak
 S 5 W 234.32 54.32



43.50
 44.30
 44.10

A 13
 East 21.23.20 201.41.00
 at 28 W 150 between brown wire

Observations from Eastern
 most Rock off S. End Amaknak

Western Rock do. 13

Δ L 0 100

A 4 1/2 E

A 4 1/4 E

Middle of West Rock off

S. End Amaknak I.

By chronometer 212 between
 red wires.

A 74 W 282.55 102.37.40
 Correction +20"

S. End Bluff off S. End Amaknak
 at 65 W

S. End Amaknak I. (S. (171/4))
 155 between the compasses
 at 56 3/4 W

Δ K 3.26.20 183.36.20
 A. 7 3/4 E
 7 3/4

Δ I 5.46.40 185.46.40
 A. 2 1/4 E
 A 10 E

179 59 60
 102.37.30
 77.22.30

Amaknak



Highland Station N. 5
21. 24

Cape of Good Hope
27 1/2 E

Day fair but high wind in latter
part of which rain late in P.M.
Ther. 47 Bar. 29.550 - Wind S.

October 31st. Tuesday -
Heavy snow storm with
squalls from the S. Ther. 45
Bar. 29.300

November 1, 1871

Wednesday

Ther. 24. Bar. 29.580 Wind S lit
Heavy snow fall

November 2, Thursday

Ther. 32 Bar. 29.844 Wind 0.
Snow falling at intervals all
day, very heavily in P.M.

Nov. 3rd Friday

Heavy snow storm Bar. 28.762
Ther. 35. min 31. Wind squalls from
N.E.

Test thermometer

From 32 to 48 in the water they
appeared to agree above that

Parallel readings. Fahr.
Ship Ther ^{in water} Standard

✓ 32°	32°
✓ 32. 1/2	32. 1/2
✓ 45°	45.0
✓ 45. 1/2	45. 1/2
✓ 44. 1/2	44. 1/2
✓ 38.0	38.0
✓ 37. 1/2	37. 1/2
✓ 37.0	37.0
✓ 41.0	41.0
✓ 41. 1/2	41. 1/2
✓ 47. 1/2	47. 1/2
✓ 48.0	48.0
✓ 49. 1/4	49.0
✓ 59. 1/4	59.0
✓ 59. 3/4	59. 1/2
✓ 60.0	59. 1/2

the ships therm. read from $\frac{1}{4}$ to $\frac{1}{2}$ a degree too high - In the air the difference appeared greater. The ships therm read half a degree higher between 32 & 60 but the difficulty of placing two thermometers one with a metallic case & one without, under the same conditions in the draughts & currents of air on board ship. leads me to place more reliance on the test by water.

Clean instruments.

Nov. 4. Saturday

Gale from SW & snowstorm

Bar. 29.170. Ther. 30 - 28 min

Sunday Nov. 5

Day cloudy squally & snowy. Bar. 29.986

Ther. 32. Min 28, SW.

Monday Nov. 6

Day squally with rain. Bar. 30.076

Ther. 34. Min 28. SE.

Parallel readings of Thermometers

Ships

57° $\frac{1}{4}$

57° $\frac{1}{4}$

57.

Standard

57.

57° $\frac{1}{4}$

56° $\frac{3}{4}$

In air.

58° $\frac{1}{2}$

57

59.

34° $\frac{1}{2}$

32° $\frac{1}{2}$

58° $\frac{1}{4}$

56° $\frac{1}{2}$

58° $\frac{1}{2}$

34

32

Note { In air outdoors read even with the standard nearly

Tuesday Nov. 7, 1871.

Obs. from Δ West - Head
directly over signal.

From A.

From B

A.	0	110
N. $52\frac{3}{4}$ East	✓	180
N. $52\frac{5}{8}$	✓	181
N. $52\frac{7}{8}$	✓	182
Gable	8.04.40	188.05.0
N. $60\frac{3}{4}$ E	8.05	188.05.1
N. $60\frac{1}{2}$ E	8.15	188.45.0
N. Head	1.44.	181.44.
N. $54\frac{1}{4}$ E	1.44.24.	181.44.20
W. End spit	6.0.40	186.0.40
N. $50\frac{3}{4}$ E	6.1.1	186.1.1
W. Rock of reef	9.0.20	189.38.20
N. $62\frac{1}{2}$ E	✓ 9.40.40	189.40.40
N. $62\frac{3}{4}$ E	✓	

X/N Bluff S. of reef - same line as small reef
at 10 ft. of bluff.

K	18.11.40.	198.12.0
N. $70\frac{3}{4}$ E	✓ 18.13.0	198.13.0
N. $70\frac{1}{2}$ E	18.12.40	198.12.40
I. S. E. E.	45.16.0.0	225.26.40
✓	45.16.40	225.27.
	45.26.40	225.26.20



ΔA $\frac{1}{2}$ 180
 HAS 48 $\frac{1}{2}$ E Corr. 0 79.11.20 227.11.20
 V +10 79.11.24 227.11.40
 0 79.11.20 227.11.20

I 0 58 $\frac{1}{2}$ E V 0 180
 S. 14 $\frac{1}{2}$ E Corr. -10 67.12.20 227.12.10
 V 79.11.20 -10 67.12.20 227.12.10
 -10 67.12.20 227.12.10

S. 0 180
 S. 47 $\frac{1}{2}$ W. 61.52.40 241.53.6 Corr. 0
 V 41.52.40 241.53.2 0
 61.53.0 241.53.20 +20
 E 51 $\frac{1}{2}$ W 143.24.1 323.24.2 94.10
 V 143.24.0 323.24.0 0
 143.24.20 323.24.20 +20
 D. 7. 1/2 E 194.57.20 14.57.0 0
 194.57.20 14.57.0 0
 V 194.57.20 14.57.0 0

D. 0 180
 N. 3/4 E V
 A. 52.14.10 232.14.20
 V 52.14.0 232.14.40
 52.13.20 232.13.40
 Sines N. 13/4 E 2.13.0 182.13.0
 Round Top. N. 5/4 E. 4.40.40 150.40.40

East S 83 1/2 E V

ΔA $\frac{1}{2}$ 15
 S. 11 1/2 E Corr. 0
 76.55.20 356.55.40
 +20 76.55.20 356.55.40

Round Top 0 180
 S. 47.23.20 227.23.40
 V 52.12.20 Corr. +10 227.23.40
 Corr. 0 V 47.23.20 227.23.40
 47.23.20 227.23.40
 Corr. 0
 Corr. 0 47.23.20 227.23.40

E. A 180
 S. 112.47 227.23.40
 V 112.47.40 227.23.40

S. 112.47.40 227.23.40
 S. 112.47.40 227.23.40

D
 C ✓ M. 15 3/4 22 15.09. 175.09

Split Top M. 33 E. x ✓

B. ✓ 22.58 202.55
 m. 23 1/4 22 ✓
 A. ✓ 22.18.40 232.15.2

Corr 21
 -40

B. 23 1/2 22 ✓ 0 110
 A. 29.16.40 ✓ 209.16.40
 29.17.2 ✓ 209.16.40
 29.18.2 ✓ 209.16.40

Corr 10
 Corr 0
 0

East
 28.8.8 ✓ 2 180
 G 29.16 209.16.40
 29.16 209.16.40
 29.16 209.16.40

Corr 0
 0
 0

95.44.40 275.44.40
 95.45 275.45.20
 95.44 275.44.20
 95.43.40 275.44
 95.44.20 275.44.20

Corr 0
 0
 0

✓ 15.09. 11. B. m. 10. 15 3 1/2 12
 X 15.09. 11. B. m. 10. 15 3 1/2 12

North edge of Flat on Amaknak
South bears N 83 1/2 W (middle)

S E end of Flat bears S 66 W

End of slope S W corner in one
with rocks off west head of Captains
Harbor bears S 79 W

Rocks off East Head Western
Inlet bear S 84 1/2 W

Bluff S. side Makushin valley
bears N 80 W

Day clear & calm, Therm. 38
min. 28. Bar. 30.048 Speed
nearly all day taking the above
angles and using azimuth from
Polaris in evening, result 20.55.
not very satisfactory from the
imperfect nature of the instru-
ments. Harrington = alt. in All Hall
November 8. Wednesday

Observations from A East

Δ Mast N 83 1/2 W	0	0	150
Δ E + 66 1/2 W	Corr + 40.17	03.40	197.02.10
✓ "	2.17	03.20	197.02.11
"	0	17.02.40	
"	0	17.02.30	197.02.11

1 E Cont. G. D. V 17-42-40 10-10-20

Δ D N 24 1/2 W Cor. -0.20' 59.49 20 239.49.40
 " 0 59.19 40 239.49.40
 ✓ " 0 59.19 20 239.49.20
 -40' 59.19 239.19

Δ E 0 180
 Δ D Cor. 0 42.17 222.17
 Δ C N 24 1/2 W " -1.20' 64.28.40 241.28.40
 " +40' 64.28 241.28.20
 " 0 64.28.40 241.28

Δ D 42 1/2 W 0 180
 Δ C ✓ Cor. 0 22.11 202.11
 Δ B N 08 E " -20' 32.22 212.22
 " -1' 32.22.40 212.22.40
 " 0 32.23 212.23

Δ A N 44 E ✓ " 0 68.23 248.23
 " -10' 68.23.40 248.23
 " 0 68.23 248.23

Δ C 0 180
 Δ B ✓ Cor. 0 10.11 190.11

Δ B 0 180
 Δ A ✓ " +100' 36.00.00 216.00.20"
 " +20' 36.01 216.00.40"
 " 0 36.00.40 216.00.20

S. end Creek at Maknat A. bears N 7 1/2 W

Crest of Split Luf. N 32 E

End of Bluff, S. of creek, water edge
N 44 7/8 E

N. Hards Bluff N 45 5/8 E

A 13

Δ A

Δ K N 56 1/4 E	Cor + 40'	0	180
✓	+ 20	12, 14, 40	192, 14, 40
	+ 10	12, 14, 40	192, 14, 40
	+ 10	12, 14, 40	192, 15

Δ K ~~S 80 1/2 E~~

Δ II S 80 1/2 E	Cor + 20'	0	180
✓	+ 20	43, 19, 40	223, 19, 20
	+ 20	43, 19	223, 19, 20
	- 40	43, 18, 20	223, 18, 45

Δ A

Δ I

✓

Cor 0

0

55, 33, 20

180

235, 33, 20

Δ A N 44 1/4 E

Δ L S 28 1/2 E	Cor + 20'	0	180
✓	0	107, 24, 40	287, 25
	0	107, 25	287, 25, 20
	0	107, 25	287, 25

A

B

ΔI	\checkmark		0	180
ΔL	\checkmark	Corr -20"	51.51.20	231.51
	\checkmark	" -20"	51.51	231.57
		" 0	51.51.20	231.57.20

$\Delta H/S 12 1/2$		Corr 0	63.13	243.13.20
		" -20"	63.12.40	243.13
		" 0	63.12.40	243.13

ΔK			0	180
ΔH	\checkmark	Corr -40"	106.31.00	286.31.20

ΔL	\checkmark		0	180
ΔH			$\pm 11.38.40$	± 191.39
		Corr 0	11.21.20	191.21.20
		" +20"	11.21.40	191.21.40

$\Delta C/S 45 W$	\checkmark	Corr 0	73.17.40	253.18
		" -20"	73.18	253.18.20
	\checkmark	" -40"	73.18	253.18.20

$\Delta F S 70 3/4 W$	\checkmark	" +10"	99.10.40	279.11
		" 0	99.10.40	279.11
	\checkmark	" +20"	99.10.40	279.11
		" 40"	99.10.40	279.10.40

ΔH			0	180
ΔC	\checkmark	Corr 0	61.57.20	241.57.40

ΔC
 ΔF ✓ Cor 0 0 25.52.40 180 205.52.40

ΔF
 ΔE Cor 0 0 42.45.20 180 222.45.40
 " +20 42.44.40 222.41"
 - 42.45.20 222.45.40

Top Amaknak S S 49 1/2 W

Middle Crest of Pyramid S 31 1/2 E

End Rocks off E Point Amaknak Sound
near S S 35 E

Split Top at 32 7/8 E

Day clear, fine & calm. Ther. 38.
 Min 24. Bar. 30.448. A coat
 of ice over inner harbor from one
 half to one inch thick does not
 melt during day - all day taking
 angles, put oil in tide gauge.

Thursday Nov. 9

Clear & fine. Spent the
 greater part of the day taking
 observations for equal altitudes,
 recording for chronometer
 with tide gauge. Ther. 38, Min
 30. Bar. 30.472. Wind light from
 SE. At anchor in P.M.

Friday Nov. 10. 1871

Day clear & fine wind S E light
Bar 698 Ther. 54, min 33. Spent
a good part of A.M. in breaking
a road to the tide gauge through
the ice. P.M. Observations for
magnetic variation on Spit

Saturday, Nov. 11.

119.45.20 289.45
 119.45.20 289.45
 4.40 182.45

119.45.20 289.45
 119.45.20 289.45
 119.45.20 289.45

33 fbs in
 66' 10m distance indicated for between
 lower wires and 20, 25 between both

Lay clear & fine with few clouds
 & a moderate S.E. breeze. Ther. 42.
 Min. 35. Bar. 30.368. Tide gauge run
 very well.

Sunday Nov. 12 1871

Day cloudy with moderate S.E. Therm. 45. 35.
 Barometer 30.046.

Monday Nov 13

Day Cloudy with some rain & snow
 Bar. 30.050. Therm. 47. Min. 35. Wind
 light S.E. P.M. take bearings of base line



Friday Nov 14.

Bar. 30.050. Ther. 40. Min 34.
Cloudy, fair. Wind light E.

Observations from A. Spithead
Δ Ushkta

N. 3 1/2 E (telescope direct)

N. 3 1/2 E (telescope reversed)

N. 3 1/2 E (telescope direct)

Telescope reversed on Bunker's Island from
here, the same as above

Observations from Δ Round Top.
Bunker's Island 45 1/2 E from center of station,
distance 20 m

	A	B
Δ Ushkta	180	0
N 27 3/8 E	✓	

A Head	193.38.40	13.39.
N 41 1/8 E		

Δ Ushkta	✓	180	0
N 27 1/2 E			

A Head	Cor + 30°	193.39	13.39.20
N 41 1/8 E	✓	193.39	13.39

Δ Ushkta	180	0
----------	-----	---

Δ Rocky Point 25 miles 74 m
Cor 0

$$\begin{array}{r} 12 \\ 6 \\ \hline 10 \overline{) 720} \\ \underline{70} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

$$\begin{array}{r} 10 \overline{) 60} \quad 3.7 \\ \underline{48} \\ 120 \\ \underline{112} \\ 80 \end{array}$$

$$3.45$$

$$3.25$$

$$26.15$$

$$3.30$$

$$3.03.45$$

$$3.03$$

$$3.30$$

$$3.26.15$$

$$3.26.15$$

$$3 \overline{) 10.22.30}$$

$$3.27.45$$

$$49.00$$

$$22.15$$

$$31 \overline{) 20.25} \quad 67.5$$

$$18$$

$$22$$

$$71$$

$$15$$

Rocky Pt. Cont. Cont 20 = 24.06.100 74.06.110
 S 78 1/2 E 0 254 07 74.06.110
 S 78 1/4 E ✓

Crest of Split Crp ^{com 0} 191.45.40 11.45.40
 N 39 1/4 E ✓

N. End Middle Bluff 203.39.20 23.39.40
 N 51 1/8 E com - 20 ✓

Pinnacle.

N 47 1/4 E Com - 20 209.44.20 29.44
 ? 209.44 29.44.20
 ✓ " + 1.20 209.45 29.45.20
 0 209.44.20 29.44.20

Bankers Δ com + 10 228.07 48.07.10
 N 75 1/2 E ✓ 0 228.07 48.07.10
 " + 40 228.07.40 48.08

Split head Δ + 40 205.17.40 25.18
 N 52 3/4 E ✓ " - 20 205.17.40 25.17.40
 " - 40 205.17 25.17.20

Split head Δ 180 0
 N 52 3/4 E ✓

Rocky Pt. Δ com + 40 228.49 48.49
~~N 81 3/8 E~~ ✓ " - 20 228.49 48.49
 S 78 1/2 E " + 20 228.48.40 48.49

	A	B
Δ Rocky Pt.	180	0
S 78 1/2 E		

Δ D	Gn 0	265.26.26	85.26.20
S 7 W	" +20	265.26.20	85.26.40
S 7 W	" +20	265.26.40	85.26.20
S 7 W			

Crest of Pyramid 237-28.20 = 7.28
S 21 E

Crest Amaknak S, 268.05 88.04.40
S 9 3/4 W

S End Hay Islands 341.05 161.05.20
S 82 W

N. End Hay I. 18.40 198.40
S 80 W

Beach off SE Bluff Amaknak I.
N 52 1/2 W 26.07.20 286.02.40

Point Rock Δ
N 22 E 100.30 280.30

Ulaakta Δ Gn-20° 105.54 285.54

Rocky Point Δ ~~180~~ 180 0

Point Rock Δ Gn 0 100.30 280.30

Height of tent. ^{cor. 0} 100.30 280.30
+ 222

Close up & return to vessel
at 2 P.M.

Wednesday Nov. 15

Bar. 29.932. Therm. 34 Min. 29
Calm. Cloudy. Light (1/2 in) ice
in inner harbor. rains mostly day

Thursday Nov. 16

Bar. 29.778. Therm. 32. Min 31. Sky
cloudy snowing lightly. Calm. Rains
& snows during day. P.M. NW breeze.

Friday Nov. 17

Bar. 29.586. Ther. 32. Min 29. Snowing
hard calm.

Saturday Nov 18

Bar. 29.056 ^(25.0) Ther 40. Min 29. Rain &
hard squalls from N.E.

Sunday Nov. 19

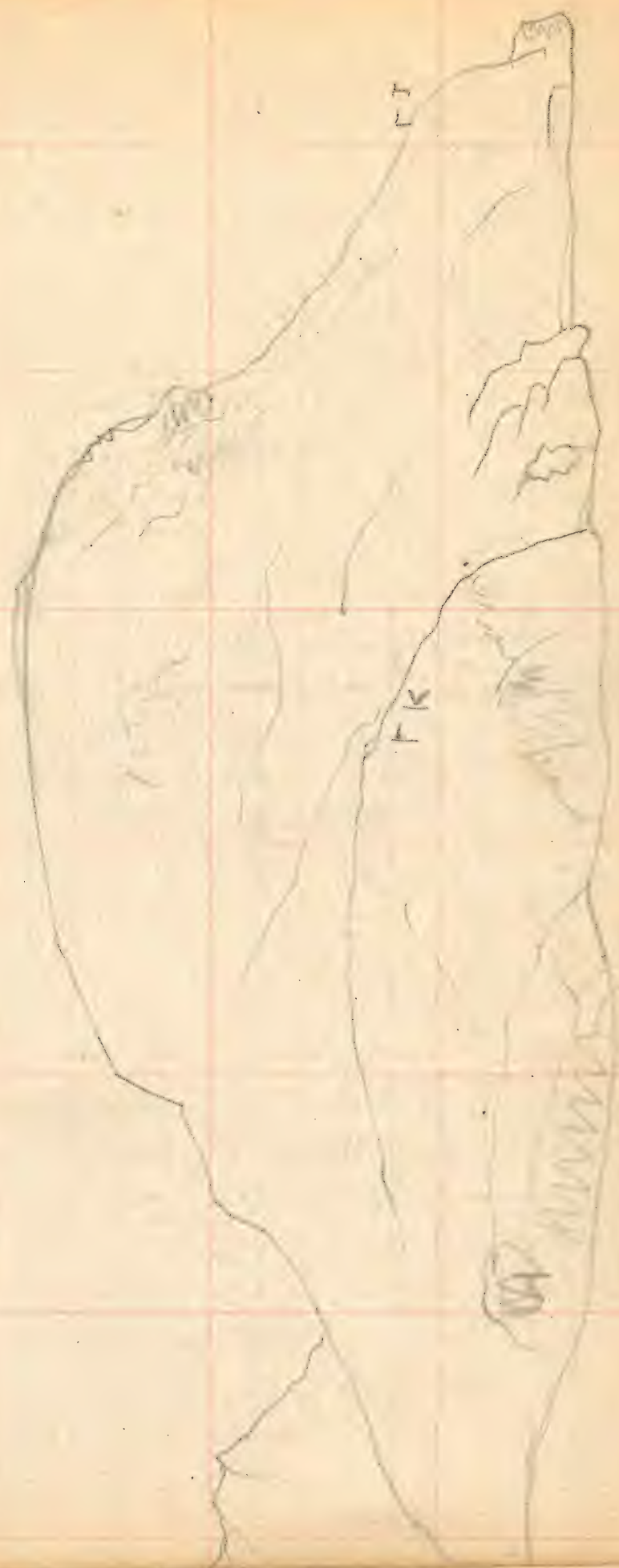
Bar. 28.978. Ther. 40. Min 35. Rain
and light NW wind.

Monday, Nov. 20.

Bar. 28.658. Ther. 40. Min 35.
Strong steady northerly wind with
very high tide long continued
N.N.W.

Tuesday Nov 21 ⁽³²⁾

Bar 29.272 Ther 39. Min 35. 24 S.E.
Observations from Spithead
Center of Signal S 85 1/2 W for
Throd. 29 in. from plummet



to center of signal
Ulahtu 27° 54' 287.54¹³
(Spithead) Center Sig. 299° 48' 109.48 (185° 12)
Day half cloudy, windy toward
noon P.M. calmer -

Wednesday Nov. 22

Bar. 30.058. Therm. 37. Min 36. Wind
SW in early morning changes to NW
with snow about 9 A.M. P.M. fair -
Go to Spithead to take angles but
are delayed & finally interrupted
by heavy snow squalls - Evening
calm, moon shining few clouds -
Later heavy snow fall.

Thursday Nov. 23

Bar. 30.630. Wind very light NW. Ther
38 min 28. Cloudy. Spend day taking
angles from Spithead & Round Top.

Friday Nov. 24

Bar. 30.550. Ther. 39. Min 28. Wind
light SE. Thin ice over the whole of
small harbor. Spend day at Ulahtu
station taking angles

Saturday Nov. 25

Bar. 30.456. Wind light Easterly. Ther
39. Min 22. Morning blizzard too
hard to work P.M. Angles from
Round Top.

Sunday Nov. 26

Bar. 30.162. Ther. 41.5. Min. 38.
Wind fresh, E.

Monday Nov 27, 76

Bar, 30.036. Ther. 42, min. 38. Wind light SE. Foggy with various degrees of density all day.

Tuesday Nov. 28.

Bar. 30.036. Ther. 40. Min 38. Wind light NE. Go to Bailey's A & take angles. The signal is forty feet above the beach about thirty feet in from high water mark and with a single cluster of black rocks in line with Spit Head Station. N $77\frac{1}{2}$ W. Heavy surf coming in from NW capsizes boat when endeavoring to launch her; store boat wet instruments and everything. Walk back to village as we cannot get off on account of the surf and rocky beach.

Wednesday Nov. 29

Bar. 30.186¹³⁰. Ther. 36. Min 35. Wind squally from SE with snow flurries occasionally.

Thursday Nov. 30

In line between Wlaktu signal & Pinnacle at top of beach telemeter reads between both wires 22.

Beach of Wlaktu Harbor, in line with Bulhit Rock and Wlaktu signal, telemeter reads 46 between both wires.

angles at Wabbits from 10 A.M. to 2 P.M.
Bar. 30.3³⁶₀₀, Ther. 35, Min 33, Calm &
cloudy in A.M. - Clears off bright at noon
with NW breeze. Clouds again in P.M.

Friday Dec 1 1871

Set the distance of 20 meters for
the telescope both ways. The at-
tached scale is 14 1/2 on the
telemeter, at 440, meters 39. The lower
at the distance of 40 meters attached
scale of 20 places on the staff.
Angles at Rocky Point in A.M. P.M.
correct adjustments of theodolite and
test telemeter. Bar. 30.3³⁶₈₆, Ther. 31, Min.
25. Morning calm followed by breeze
from NW rather strong in P.M. cloudy.

Saturday Dec 2

Bar. 30.2²⁹₈₆, Min 33, Ther. 35³⁵
Puffy wind from NW with suc-
cessive snow squalls all day
turning into rain in P.M.

Sunday Dec 3

Bar. 30.1^{30.5}₇₈, Ther. 31, Min 29, Strong
NW wind sky cloudy

Monday Dec 4

Bar. 29.7⁷₃₆, Ther. 29, Min 27.
Breeze from W. Sky half cloudy -
In line with east end of Beacon
dike at high water mark on
telemeter, 20 between both wires
In line with Roundtop, 2 1/2
between lower wires,

Lowest Point of Spit 48 between
lower wires, bearing S 82 W
In line with A Pulpit 41 between
lower wires.
In line with A Baily's, 6 between
lower wires

Spent morning taking angles from
Spithead completing the series. P.M.
Wind too high to admit of work

Tuesday Dec 5, 1871

Bar. 29.312 Ther. 30.5 Min. 27.
Wind fresh N.E. at 11 A.M. snow hard
from 9.30 A.M. to 11 take angles from
Rocky Pt. A. Snows all the rest
of the day & evening

Wednesday Dec 6.

Bar. 29.050. Ther. 31. Min. 25. N.
Gale with snow from north all day

Thursday Dec 7

^{snow, wind from NW to SW}
Gale continues. Bar. 29.00 Ther. 23. Min 21
Visit tide gauge which could not be done
yesterday and find that it had stopped
about five minutes after we left
it Tuesday, from a piece of the
pencil getting between the rollers

Friday Dec 8

Bar. 28.988. Ther. 24. Min 20. Wind light
S.E. with light snow P.M. very
heavy snow fall.

Saturday Dec 9

Bar. 28.943. Ther. 32. Min 22. Wind fresh

SW. about 8 inches of snow fell last night.

at 10 minutes (meantime) of 2 P.M. the bench mark was 54 inches above the height of the water which read on the staff 8.45 - carefully measured -

Sunday Dec 10

Calm & light S.E. breeze. Cloudy. -

little snow - Bar. 29.546 Ther. 33 - 30

Monday Dec. 11.

Ther. 30 to 45. min. 27. Bar. 29.284
wind very light from SW. sky in am perfectly clear and in P.M. only very light clouds. Spend day taking angles at Pulpit & Rocky Point. P.M. quite cold. Small harbor freezes over again. About midnight N.E. breeze.

Tuesday Dec 12. 1871

Bar. 29.070. Ther. 35.5. Min 27. Wind has cleared away all the ice, and is blowing hard from NW with rain & snow.

Mem. from book of angles Dec. 11.

From Pulpit. General trend of shore toward Hull Rock, N 27 E.

End of bluff bears N 30 E

Split Top, N. 46 E

Lost amuknak S. 16 $\frac{1}{4}$ W

went to tide gauge at 2.15 a very high tide found that the water

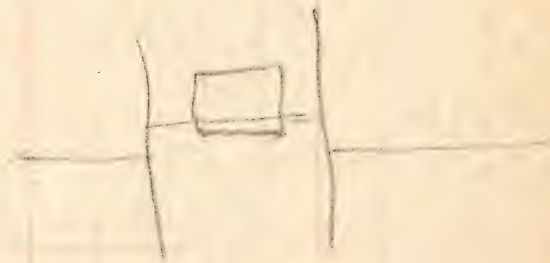
stood at 9.5 on the staff taking the mean between the wavelets. It had been a little higher but owing to the warping of the paper by damp the pencil had been prevented from reaching its maximum. By carefully examining the snow in a quiet place, which came to the water's edge and allowing for the rise and fall of the ripples I came to the conclusion that it had been about a tenth of a foot higher which would bring it to the limit of the paper, or 9.6. So off to gauge again about half past eleven P.M. and find the water down to 3.525 on the staff with about a foot to spare on the paper. The water rose ~~fell~~ a little after this. Bar. 29.086

Wednesday Dec 13, 1871

Bar. 29.210 Ther. 32.5 Min 31. Wind N.E. Cloudy with snow. High tide again. P.M. cloudy, fair - Evening clear. Stars very brilliant.

Thursday Dec 14,

Bar. 29.37. Ther. 27. Min 20. Wind 0. Cloudy with snow. Slush ice all over small harbor. Later, about noon breeze from N.E. with snow. Evening SW



and SE with heavy rain & high wind. ice broken up & disappears. Bar. falls to 28.930.

Friday Dec. 15.

Bar. 28.494. Ther. 44. min. 25. Gale with rain, from S + E - boxing the compass by fits & starts. Very high tide exceeding the limit of the gauge for some two hours & a half.

Gale all day of varying intensity with torrents of rains.

Saturday Dec. 16

Bar. 29.131. Ther. 35. min 24.

SE gale diminishing. It blew with great fury at times during the night and the vessel dragged to the northwest three or four lengths though having both anchors and 120 fathoms of chain on each out. Cloudy with hail squalls. Several signals blown down. Roofs off several houses in the village. boats & water casks blown away from the beach. P.M. sails more northerly and lightens. Evening blue lights visible on shore.

Sunday Dec 17

Bar. 29.838. Ther. 21. min. 29. Calm clear. Small harbor freezing over. Finding a constant difference between the height as measured in the staff

outside, and the same as recorded by the tide gauge, since the oil was put into the float box, I measured the height from the surface of the oil to the bottom of the floor of the tide gauge house finding it to be $19\frac{1}{4}$ inches - at the same time the distance from the surface of the water to the bottom of the floor, was $21\frac{1}{4}$ inches giving an elevation of the surface of the oil above the water level of two inches. It probably varies a little with the temperature. Day very fine and clear. Ice forming quite thick & hard by night finding irreconcilable errors in the computations from the telemeter I attempt a measurement on deck but the distance is too short for a satisfactory trial. The staff has been badly made and will have to be painted over as soon as I can get a constant for the angles measurements already taken.

Correction for telemeter measurements

Focal length of theodolite 97
 7.5
 Object glass to center 4.5
 Additive corr. $12 \text{ in} = .3048 \text{ meters}$

For test. Place the initial point of the chain one foot in advance of the plummet in the direction of the staff, adding the correction to all distances measured once for each sight.

Trial on deck gives 5 units between both wires at a distance from the focal point of 16 feet $5\frac{1}{4}$ inches = to 1 unit between both wires at a distance of 3 feet $3\frac{45}{100}$ in or 0.92313 meters to which correction to the center should be added. Previous tests have omitted the focal correction and are hence erroneous. They must be repeated in a more correct way at the first opportunity.

Monday Dec 11

Bm. 30.380. Ther. 39. min. 25. Wind in A.M. none. Toward noon N.E. light P.M. strong, north. Ice which had formed quite thickly in small harbor, begins to break up.

Took the boat & five men & go to the various signal stations repairing damages done by the gales of the 16th Builups. Round Top and Rocky Point signals all down, were set up again. The others were all right. The wind appeared to have lifted the signals bodily out of the ground as the holes were not enlarged or the stays, except one, broken. Evening cloudy with a good deal of haze & high wind. Back to vessel by dark.

Tuesday Dec 12

Bm. 30.280. Ther. 37. 34. Wind H.E. lts ashore & test telemeter carefully. 20 units between both wires corresponds to 20 meters and two units are included between the lower wires at a distance of 13 feet 1 inch. Both distances from one foot in advance of the

Example I

170 between lower wires

$$\begin{array}{r} 170 \\ 2 \\ \hline 340.000 \\ .729 \\ \hline \text{Result } 339.271 \end{array} \quad \begin{array}{r} .006085 \\ 170 \\ \hline 33 \\ 56 \\ \hline .004256 \\ .42595 \\ 0085 \\ \hline 1.034450 \\ .304794 \\ \hline .729656 \end{array}$$

$$13 \text{ ft } 1 \text{ inch} = 3.96283 \text{ meters} \quad \left. \begin{array}{l} 1 \text{ inch} = 0.0254 \text{ meters} \end{array} \right\} = 3.98783 \text{ meters} = 2 \text{ units between lower wires}$$

This gives as constants—

1 unit between both wires = 1 meter.

1 unit between lower wires = 1.998915 meters

use therefore for lower wires

1 unit = to 2 meters less 0.006085 meters for every unit subtended. to which total the sum of .304794 is to be added for the focal correction making the true distance

plumbob as required by the formula for correction of focal distance
 P.M. clear, evening beautifully clear & calm. ice forming as usual over small harbor. Move the vessel out into the middle of the harbor in am. Day so foggy as to wet like rain until late in P.M.

Wednesday Dec. 20

Bar. 30.172 Ther 30.40 Min. 22
 Sea calm - perfectly clear.
 Ice over small harbor extending as far as North Rock

From Round Top A. by altimeter 145
 between both wires. Vertical angle $9^{\circ}40'$
 Beach list from Round Top A. by altimeter
 170 between both wires. Vertical angle $12^{\circ}14'$
 Beach list from Round Top A. by altimeter
 195 between both wires. Vertical angle $10^{\circ}11'$
 High list from Round Top A. by altimeter
 135 between both wires. Vertical angle $13^{\circ}25'$ ($10^{\circ}59'$)

Foot of Round Top A. hills west by altimeter 135 between both wires. Vertical angle $14^{\circ}05'$

Westernmost Pt. of Blakely Harbor from S. to N. by altimeter 177 between both wires. Vertical angle from Blakely 33° 10' and 33° 10' B. by altimeter 5° 20'

\pm the correction for vertical angle

Small Rocky Point on the shore
of the bay. The beach is very
bleached. 2.4 m. high. The bay
is very deep.

High wind from E & S arises &
we return, after finishing series
of angles - some fog comes in.

In the a.m. a good deal of
fine ice around kelp and
in sheltered portions of the
main Bay soon gone how-
ever after wind springs up.

Thursday Dec 21

Visit tide gauge and put on
new paper. Bar. 29.922. Ther-
37. min 34³³. Wind squally E. high.
Cloudy & disagreeable. Ice all gone.
Work over copying all day, wind
shifts to NE in P.M. - with rain.

Friday Dec 22

Bar. 29.570. Ther. 39. min 35. Wind puffy
from SE. Heavy rain. Visit tide gauge &
let out chain three links to shift the mean
level nearer the bottom of the paper.
Rains all day, work at copying
angles.

Saturday Dec 23

Bar. 29.702. Ther. 40. min 39. Wind
light E. Heavy fog & fine rain all
day. Morning erect two signals
on the east shore of the Bay.



one near the cemetery about forty feet from the beach and fifteen feet above high water mark just to the NW of a small rivulet which loses itself in the stones of the beach, call this Albatross station. Another on the SW end of the flat on the east side of the Bay west of a small right where the boats can almost always land, 20 feet from the beach and four feet above high water mark - Still water station. Repair several signals from which the flags have blown away -

After noon erect a primary signal on the top of the hill between middle & South American Island just south of the lagoon, height not yet determined, all the other primary stations are visible from this one and it will be one of the stations for the main triangle, name it Keystone station -

Sunday Dec 24

Bar. 30.050. Ther. 40. min 35. Wind SE. 10-20. Breeze fresh in P.M.



Monday Dec 25, 1871

30.157. Ther. 35. Min. 33. Cloudy with rain and a severe SE wind.

Tuesday Dec. 26.

Bar. 30.200. Ther. 37. Min 35. Wind easterly, fresh. Cloudy. Wind blows almost a gale during day. Make arrangements about coal.

Wednesday Dec. 27

Bar. 30.153. Ther. 36. Min 34. Wind light easterly. Cloudy with passing showers of rain and sleet. P. M. some snow.

Thursday Dec. 28

Bar. 29.918. Ther. 32. Min. 29. Wind none. Cloudy with light snow fall. Ice forming on small harbor. To get mean temperature of sea water commence to observe with Miller Casella. Therm hanging it over the stern with six fathoms of line every night continuing the surface observations. Last night the Casella read 40°. Water in early am was 37° at the surface. To get an approximation to the max. temp. of the air, hang up one of the Casella Therm at the tide gauge. Gauge seems to stick some hours when the water is on the rise. Go to Spithead in P. M. and attempt to measure over the base line with



Spithead to

A Edge of water W side spit 120 fms.

B Near " 4 paces " " 100 fms
Walk in from A 14 paces to escape water
Spit abt 50 ft wide here.

C Little line not straight in water
up & down at each end six or
10 feet - 120 ✓

D on top of spit to point on E beach
10 paces across spit at 90 fms -
beach 120 fms ✓

E along East beach 120 fms.

F " " " 120 fms ✓
80 in 10 paces to escape water

G on top of spit $\frac{1}{3}$ across 120 fms

Ulakhta 89 fathoms -

	89 ✓
5673. ft	120 ✓
5454	120 ✓
219	120 ✓
	120 ✓
	120 ✓
	100 ✓
	120 ✓
	909
	5454

a 120 fathom line, as chaining is impossible. The attempt fails as I supposed it would. Must re-measure with the telemeter. Day ends calm, or light E air, and heavy coat of ice on small harbor.

Friday Dec. 29, 1871

Bar. 29.912, Ther. 34. Min 21. Max 35.
Wind very light SE, Clear & fine. Small harbor solidly frozen over.
Go to Spithead to re-measure base line with telemeter

Station	Reading	Vert angle	Meters
Spithead to A	100	0	100.000
B	232 1/2	0	232.500
C	318 1/2	118.55'	318.413
D	253	0.15'	252.998
E	233	0.15'	232.998
F	84	84.45'	84.916
G	330	+ 118.40	329.930
			820.535
			122422.5
			1250.705

Remarks

A is about 10 ft. from edge of Spit, W. side, about middle of shallow light.

B is on the beach a little below high water mark, W. side of Spit over shallow light and along beach.

C on top of bank, W. side of Spit. Light on rather deep light.

D across narrowest part of Spit. Near edge of beach about 10 ft above high water, W. side, very near parallel with Spit.

E on E. side, on beach about high water, over beach.

F along beach to edge of water. Station at edge of water, about half tide.

G Over water along beach, about high water mark on beach E side.

Station	Reading	Vertical	Meters
HE	42 1/2	2° 44'	1551.755 41.554
Uakhta	169 1/2	+1° 25'	169.410

~~From Uakhta~~
Total

Pro. approx. 2.743

1765.462

P.M. Clear & calm or light Easterly breeze. Ice remains intact. A very large column of smoke & steam arising from Uakushin volcano too dark to work back as I had intended.

Remarks

Whenver beyond from the point on road (Uakhta) 20' at the spit, it is the point where the spit begins to break to the eastward.

Saturday Dec 30, 1871

Bar. 29.824 Ther 27 Max 32 Min 19. Calm
Ice thick & heavy extending out into
outer harbor nearly to reef. Clear fine.
Much of A.M. lost in breaking way
through ice

Ulakhta to

Station	Reading	Next angle	Meters
From Ulakhta			
A	197	0° 46'	196.918
B	19	0	19.000
C	330	0	330.000
D	255	0° 50'	254.929
E	147 1/2	0	147.500
II	140 +6 in	0	140.000 .152
G	80	2° 25'	79.991
H	270	0	270.000
I	84	0	84.000
K	136	1° 00'	135.921
Spithead	104 1/2	0 no real corr	104.500 S. 047 218218 155422 1765.938
	1767		

Remeasurement of base line. P.M. from
Ulakhta to Spit head. Less reliable
than the last as the sun shines
directly in my face & the stadia
is shaded. Back to vessel about
4 P.M. Ice every where in outer harbor
but only a light coat of crystals
Remarks

Across spit at A, 20, Vert. Ang. 20.
A near H but ^{medium height} ~~main beach~~
B on water's edge near C before.
C in water, near the F of yesterday.
D on bank E, side, 25 ft from H, ~~main beach~~
Across the spit from D 30 Vert. Ang. 0.
along E Bank of spit. E on E. side on
edge of Bank. Add 6 in. to the sight
to F. Across Spit from F 33. Vert. 0.
Along E edge and across narrow part
F on W side, on edge of Bank
Across from F 12, Vert. 0
Along W edge Spit and into water
Over light. H on E side of water
Along water's edge, I is on beach,
Over a shallow light. Across Spit
29 1/2 ^{vert 20} from K. K is on edge of bank
W, side.

1765.938
1765.1462
.498

1400

Sunday Dec. 31, 1877

Bar. 29.362. Ther. 33, min 24 max 37.
Fresh N & W wind with clouds & a little snow
ice stationary.

Monday Jan. 1, 1878

Bar. 29.136. Ther. 30. Min. 25- Max 32
Fresh high wind from NW with snow
squalls - ice prevents our visiting
tide gauge. Wind blows very hard
during day & evening but makes very
little impression on the ice.

Tuesday Jan 2.

Bar. 29.222 Ther. 27 Min. 25- Max. 33
Wind fresh NW cloudy with snow
at intervals. Spend most of the
morning getting to the tide gauge
the bridge, to the shore having
been carried away by the ice.

Wednesday Jan 3.

High NW wind, Ther. 30, Max 30
Min. 24 Bar. 29.150
Ice little affected by the wind, but
apparently thawing a little. Snow
squalls occasionally.

Thursday Jan 4.

Wind NW as before, this is the
steadfast wind we have had.
Bar. 29.340. Ther. 25, Min 23, Max 32.
Ice gradually yielding but still
covering the better half of the harbor
cloudy & a little snow.



Friday Jan. 5, 1872

Bar. 29.264. Ther. 22. Min. 19. Max. 25.
Wind strong as before with snow squalls
all day, ice disappearing gradually
Very low tide at night.

Saturday Jan 6.

Bar. 29.624. Ther. 23. Min 19. Max 25
Wind puffy from N.W. less strong
than before, ice mostly gone. At
wind changes from N.W. to W. &
finally S.W. Snows - evening calm

Sunday Jan 7.

Harbor covered with slushy ice
not very hard - Wind S.E. & calm
at intervals. Snows hard.

Bar 29.500 - Ther. 27. Min. 16.5.
Max. 27.

Monday Jan 8.

Bar. 29.528 Ther. 27. Min 25.
Max. 32 Wind lt. S.E. fresh
ice forming. Half clear. Wind later
in the day goes round to the N.W.
and blows most of the ice out
by 9 P.M. Weather too cold & wind too
high to do any observing.

Tuesday Jan 9

Bar 30.556 Ther 27 Min 26 Max 32
Wind N.W. strong. Half clear -
Ice still obstructing the harbor



Wednesday Jan 10, 72

Bar. 29.562 Ther. 28. Max 30 Min 19.
Wind shifted to SE fresh. Heavy
clouds. Ice still obstructing the
harbor.

Thursday Jan 11, 72

Bar 29.256 Ther 30 1/2 Min 26
Max. 30 - Wind light Easterly in
A.M., N Westerly in P.M. Snowing
lightly at short intervals - Slush
ice forming - Work over com-
putations of angles all day &
copying notes

Friday Jan 12.

Bar 29.233 Ther. 24 Min 23 Max. 34
Cloudy with snow Wind light W +
SW

Saturday Jan 13

Wind SW, light. Bar 29.256 Ther
25 1/2 Max 26 Min. 20

Copying notes all day - Snowing
heavily.

Mean temp at this place for Oct. 71

42.5 Bar. 29.433 Nov. 71 37.95

Bar. 29.913, for Dec. 71, 33.5. 29.640

Sunday Jan 14

Cloudy with heavy snowfall - SW wind
in A.M. P.M. N.W. strong - Bar. 29.222
Ther. 22.5 Min. 18. Max 28. Lizzie & Co
sails about two P.M. for Unga to bring coal.

Monday Jan 15, 1872

Lizzie she did not sail but returned
owing to a defect in her chains
which must be remedied before
she can go to sea.

Bar. 28.430. W. fresh, with snow.

Ther. 22.5 Min. 18°. Max 28°.

Very high tide, rises above gauge to
9.95 on staff - Small harbor
half covered with ice again but
not very thick.

— Tuesday Jan 16 1872 —

Bar. 28.756 Ther. 26 1/2 Min 17 1/2
Max 26 - Tide has been up to 10 on
staff above limit of high water.

Wind light E with heavy swell rolling
in. The small harbor frozen over
again - The low barometer of the
last two days is probably due to
a heavy blow outside which
has not reached us in here.

Cloudy - P.M. heavy snow and
a large increase of ice inside the
small harbor.

— Wednesday - Jan. 17. —

Bar. 28.900. Ther. 30 - Min 25 - Max 30
Wind NE. half a gale with
blinding snow - Continues all day
and evening. Cannot visit tide
gauge.

Thursday Jan 18. 1872

Bar. 29.001 Ther. 20 Max 31
Min. 18 Wind fresh - Westerly
with some snow - Cloudy - Ice
mostly cleared away by the wind

Friday Jan 19.

Bar. 29.154 - Ther. 19. Min 16. Max 29
Wind NW strong - Cloudy with a little
snow. Wind works round to the
S and finally in the evening to
SE and the temperature rises.

Saturday Jan 20

Bar. 29.808 Ther. 20 Min 13 Max 23
Clear, nearly calm, light SE air. Ice
forming again with some rapidity -
P.M. Cloudy, fresh SE wind. Later
strong NE and N. Evening NNW
ice grounds hard around the
harbor & vessel - Bar rises with wind

to 29.950 Sunday Jan 21

Barom. fell last night about 8 P.M.
to 29.450, a SE gale came on with
heavy squalls of half melted snow.
The sheet of ice at the opening of
Blind Harbor comes down on
us by the run - Our chains cut
a clear passage through it and
the vessel is but slightly chafed.
The old and heavy ice a foot
or more thick gets adrift &
half of it passes out through

The straits into Captain's Harbor
and the other jams ashore on
the small island and on Amuk
nak to the NW of the tide gauge
At 11 P.M. the latter was all
right but the gale was in-
creasing in fury and rendered
it impossible to go to it or
I should have removed the
instruments as I feared the
ice would carry it away.

This morning my apprehen-
sions proved too well founded
for the crib was crushed &
the house overturned and
carried ashore.

I go there immediately in the
large boat and we succeed
in fishing out the self-regis-
tering gauge soaked with salt
water and seal oil from the
float box. The only injuries
it had apparently sustained
were the breaking of the pen-
dulum and horn band of
the clock and some wreck-
ing of the woodwork. The
register of the last month
though wet was safe and
still legible. The mercurial
barometer still hung to its peg

but appeared to have sustained some injury as the mercury gave a muffled click when tipped up. The standard the monometer was safe. The Cassella and minimum thermometers were so far under water that we could not reach them in the present condition of the tide. The magnet, clock key, box of pencils and one of the weights of the tide gauge are not yet found.

We brought the gauge, therm monometer and barometer aboard and cleaned the two former as well as circumstances would admit, pending a more complete restoration.

Bar. 28.840. Ther. 38.

Max 34? Min 30?

Gale from SE with heavy rain
Moderates toward evening

Barometer goes up to 29.000

Monday Jan 22, 1871

Bar. 28.902. Ther. 40. Early am calm cloudy about 9 AM fresh breeze from SE. 4th tide gauge house towed over to & hauled up on Capt Jennings wharf where we

16th of June 1871 the
Gregorian Calendar was
ordered for Alaska -
by Arch Bishop of S.F.?

shall set it up. Wind in-
creases to a gale in P.M.
Barom rises to 29.140

Tuesday Jan 23

Bar. 29.700 Ther. 29. Min 33. Max 39
Morning early calm & quite cloudy
with a little rain. Gale ceased
early in A.M. wind S 1. Later
fresh breeze with showers of
rain at short intervals

Cloudy & half clearing starts
P.M. go down in search of
the rock reported by Mr.
Bailey, but the water is so
high that we don't find it
Evening Ther. 38. Barom. 30.100 -

Wednesday Jan 24

Morning Gale from E + SE with snow.
Bar. 29.585 Ther. 38. Max 40. Min 34
later changes to rain. Moder-
ates a little in afternoon. Go
ashore & set up tide gauge but
as some weights are lost do not
get it running. Bar. 29.252
Ther. 36. Evening raining hard

Thursday Jan 25

Bar. 29.602 Ther. 31 Max 34. Min 30
Go to bench mark to establish height
of water at new tide station. The
bench mark was 4 feet six inches
above the water at the time the signal

Bottom floor to bottom of anchor 8 ft
Bottom of anchor to mark 23.

was given, at the wharf the water stood at 8.45 or 31 inches below the bottom of the floor of the tide gauge house. Set the pencil to this point as nearly as possible to obtain the same conditions as those which existed previously at the other station. How well we have succeeded we can only tell in time.

The priest whose experience in these matters is large informs me that the tide rips in the Akutan and other passes occur about half tide sometimes twice three or even four times a day. In Unimak Pass they only occur when strong S or NW winds prevail. From Unalga Pass to Unalut is half a tide. The tidewave comes from the eastward round Kalketa point passes to the west of Amaknak Id and north into Unalut Harbor.

The current in the strait between Expedition Island and the bench mark, I observed this A.M. ran at the rate of 1 foot in 2 seconds near the shore and about 1 foot in 4 seconds in the middle of the passage.

The falling tide passes south
between Samaknak S and
Unalaska and out by
the western passage.

Afternoon, telemetric observations in
small harbor. Evening - Light NW
wind. Bar. 29.500 Ther. 34, cloudy

Friday Jan 26. 1872

Bar. 29.386, Ther. 35, Max 41, Min 34
morning, cloudy rainy, heavy squall
from SW. Tide gauge clock has
stopped - oil her and set her -
going again. The place where
the gauge is now is a very poor
one - subject to fars & heavy surf.
Noon wind moderates with
a little snow. P.M. clear fine with
fresh S + SW wind - Telemetric observa-
tions on Amaknak S. all p.m. to 5 o'clock
evening S. wind fresh, high bar. 29.380

Saturday Jan. 27

Bar. 29.538, Ther. 32, Max 42
Min 31 moderate SW, snowing heavily
in A.M. early. Go to tide gauge &
remove the clock which requires
cleaning as it will not go. Later
high wind and half clear SW.
Later heavy snow & hail - high S
wind Bar. 29.600 - Set up tide gauge
clock again, it seems to run well
evening beautifully clear & calm
Bar rises to 29.800

Sea otters from
Unalaska
Akhu.

Pigalda and other islands
trading with Diulink from
Oct 1870 to Oct 1871 -

600 skins Foxes 900 -
Beals 500 -

1871-2 winter very few
foxes not more than
200 seal - bad year.

Sunday Jan 28

Bar. 29.608. Ther. 35. Max. 39.
Min. 30 S.E. gale with furious squalls
increases toward noon and the
barom. falls to 29.400. This is the
most severe that we have yet ex-
perienced here. About noon bar-
goes to 29.350 and then the wind
moderates a little and the bar-
rises wind ceases fresh S half
clear.

Monday Jan. 29.

Morning cloudy with snow squalls
from S.W. later clears off nearly
with light S wind Ther. 34. Bar
29.683. Toward noon 29.900. Go to
find the ledge of rock reported by
Mr. Bailey. Find it & fix its
position. After noon thermometer
observations on Amaknak.

P.M., visit tide gauge which is
still out of order. Wind gets round
to S.E. then calm & fogging in
the small Harbor. in evening, Bar. 30.032
32-44.

Tuesday Jan. 30

Bar. 29.838. Ther. 35. Max 40. Min
24. Morning strong S.E. with squalls
cloudy. Visit tide gauge clock and
find her going! work all day
over plotting. Furious southeaster
with rain in P.M. Bar. 29.662

Wednesday Jan 31

Bar. 29.658 - Ther. 41, Max 41, Min 34. Storm still continuing with torrents of rain but less wind - still SE. P.M. rain & wind diminish Bar. 29.868

Thursday, Feb. 1.

Morning Bar. 29.848 - Ther. 37 Max. 37 - min 34 - Visit tide gauge which is still running with the face & hands of the clock removed. Find the level here apparently about one tenth of a foot lower than at the other station, but must await a calm day to rectify it. Storm from SE with torrents of rain - Work on current charts - P.M. moderates a little - go around the west side of Amaknak Island as far as Pinnacle - Find the low end of Hog Island covers the East Head of Katekin Bay while the outline of the island is quite erroneous - The ledge off AD from AC is in line with the end of small island while from K it is off the low place between Fish Rock & AD bluff - Evening Bar - 29.850

Fall	Sund	Rain	Wind.	Snow.
111	1111	11	$\frac{11.11}{9}$	111 111 111

3
4
2
6
13
28
3

Population
Pliutink

151 men -
142 females -

Imagnee

20 females
~~157~~ 16 men -

Makushin

~~20~~ 20 men
~~27~~ 27 women

Kashegan

36 men
35 women

Chernoffsky

28 men
31 women

Unnaak

55 men
50 women

Swine

19 men
8 women

Friday - Feb. 2, 1872

Bar. 29.962. Ther. 35.5. Max 38
Min 33. SE wind high in squalls
Rainy + cloudy. P.M. more mod-
erate, rainy. Evening barom
gauge up to 30.065.

Saturday Feb. 3

30.060. Ther. 36.5 Max 37. Min 33.
Rainy. Wind ESE. P.M. attempt
thermometer obs. but obscured in
my squalls of rain + wind which
has carried to ENE. Bar. 30.050

Sunday Feb. 4

Bar. 29.802. Ther. 36. Max 37. Min 32
Wind Ely S fresh. Cloudy. rainy
+ snowing.

Monday Feb. 5

In the low tide of the 3rd I
observed that the end of the reef
out of water off Rocky Point I
was in line with Ukakhta
+ the church or the next ware-
house bay and the ^{new} store of H.R. & Co
and Spithead. The reef off
Δ D see Feb. 1. Bar. 29.520
SE strong with rain + hail.

Ther. 36. Max 37. Min 33.
Rumbling noises from Akutan
Volcano one with a slight gas +
during day. Evening Half
a gale SE; rain to Bar. 29.442
wind coming more northerly

Biorka

49 men

56 women -

Akhun

52 men

47 women

Avatanak

24 men.

23 women.

Tigalda

31 men.

30 women.

Aliaska

Pontasofsky

57 men

55 women

Morzhofsky

27 men.

25 women.

Belkoffsky

82 men -

109 women -

Paul Bay

60 men -

70 women -

Perigromnay

9 men -

15 women -

54

Tuesday Feb. 6

NE gale with rain & snow. Bar. 29.300 - Cannot visit tide gauge in A.M. Gale continues all day evening. Bar. 29.322. Ther. 40. Max. 37 Min. 34

Wednesday Feb. 7.

Ther. 37. Max. 38. Min. 33. Bar. 29.322 NE gale. Cloudy. Wind a little more northerly and rain ceased. Visit tide gauge which had stopped from the rain beating in through the crannies & wetting the paper. Evening wind in the old quarter, rain, snow, & sleet - Bar. 29.330

Thursday Feb. 8

Bar. 29.438 - Ther. 38. Max 38. Min 33.5 Wind ESE fresh all day with rain & squalls. The sun breaks through for a moment once or twice.

Feb. 9. 1872

Bar. 29.732. Ther. 36. Max 39. Min 32.5 Half cloudy wind ENE fresh - Some snow last night - Wind goes round to N. Clears. Go up to Spitzberg to take angles but wind is so high that we can do nothing - Return & in P.M. take telemetric observations in small harbor. Finish by 5 P.M. 7 P.M. bar. 29.850 - Wind NW moderate

71 men -
82 women -

4 men
4 women

23 men
15 women -

108 men.
116 women -

53 men -
70 women -

117 men.
107 women -

1871

941 men
972 women
27 male births
17 females -

25 deaths male
32 women -

7 deaths from pleurisy & 9 from pneumonia the others from various causes not over 4 each -

346 (1871) men & women -

Unja

Popoffsky

Korovinsky

St Paul Id.

St George Id.

Atka.

all islands

Atka

Saturday Feb. 10. 1872

Day perfectly clear -
Ther. 28. Min. 25. Max 48. Bar. 29.852
at work on telemetric observations
about small harbor - all day
Am. Lt. NW air, Noon & P.M. SSE
Evening dead calm - ice making
in small harbor

Sunday Feb 11

Morning wind fresh E - Bar. 29.578
For the last three days, Akutan
volcano has been uttering loud
crumblyings, like cannonading,
at regular intervals. Yesterday
being calm and perfectly clear
puffs of smoke & steam were
seen to rise at intervals and
appeared coincident with the
sounds. Makushin is said
to have broken out ^{last November} in a new
place nearer the bay on the West
side of the island - Ther. 33.

Max 47 1/2 Min 27

1870 In July Bendel started from Kuchukin
for Nunivak and Meathia a strong
NW wind & being short of water
sailing for Unimak which they
reached in 4 or 5 days making
land in about Lon 165 - beat
all day without making any
thing the day being clear. Night

thick continued beating and about
9 A.M. the fog lifted and they found
themselves off Akhuk Bay. The
wind hauled a little fairer &
they proposed to stand into the
Bay but the fog lifted again
and they found themselves off
Captains Bay near Cape Halakht-
ta. A dead calm prevented
their working in and in the
night the tide carried them
to the eastward as far as
the bar of Unalga. The first
stretch was performed in
24 hours - Sank voyage drifted from
Cape Newenham to Hagermeistad in 1 night
to deaths in 1870 to July.

Men 927
women 974
births 247
deaths 450
43
61

Most deaths of asthma -
Pop. after 1871

112 men
107 w

P.M. snow & rain. Bar. 29.500
wind SE

Monday Feb 12, 1892

Wind mod. SE. Bar. 29.432. Ther
36.5. Max 37.5 min 31.5. Raining &
cloudy. P.M. Lt SE air - rain & snow

Tuesday Feb 13

Bar. 29.438. Ther. 33. Max 38. Min 31
Cloudy, some snow in early A.M.
Wind Lt. SE. Work on plotting
P.M. thermometer obs. on S.W. side of
Amaknak. Wind NE. rain & snow
in squalls. Hunt for & find third rock
off Amaknak S. Bar. 9 P.M. 29.250

Wednesday Feb 14

29.220. Ther. 28.5. Max 38. Min 26
Wind strong north. Cloudy. Rain & snow
Schr. John Bright arrives from S. F.

Thursday Feb. 15

Strong N wind with rain & snow squalls
Bar. 29.438 Ther. 26.5. Max 38. Min 16
Cloudy. Remove tide gauge from wharf

Friday Feb. 16

Ther. 20. Max 27. Min 18. Bar. 29.402
Strong N wind cloudy with snow squalls.
P.M. wind goes round to due West
Bar. 29.402

Saturday Feb. 17

Wind NNW. Ther. 22. Max 28. Min 19
Barom. 29.398. Cloudy with
snow squalls. 11 P.M. Bar. 29.425
Wind WNW. Snowing hard.

Sunday Feb 18. 1872

Bar. 29.442 Ther. 18. Max 20.
Min 16. Wind strong NW. with
snowsqualls every few minutes
Night driving snow storm.

Monday Feb. 19.

Bar. 29.378 Ther. 16. Max 18
Min. 15 Wind North strong
with heavy snow storm. Cloudy.
Selenitic chain measurement
to date amount to 72,233.245 m
or 38.9 miles geographical.
Evening wind even higher in squalls
stormy. Bar. 11 P.M. 29.100 Wind W

Tuesday Feb. 20

Morning stiff N W & W wind with squalls
of snow. cloudy. Bar. 29.062 Ther. 19.
Max. 20 Min. 15. 4 P.M. Bar
28.900 Heavy fall of snow thick
wind. 11 P.M. Bar. 28.944 wind
moderating

Wednesday Feb. 21

Ther. 28.920. Ther. 20. Max 20. Min 17
Wind very strong west, with blinding snow.
2 P.M. Wind more southerly Bar. 29.024
11 P.M. Wind W. more moderate 29.100

Thursday Feb 22

Wind W more moderate Ther. 19 Max
22. Min 18. Bar. 29.320. Snow squalls
at intervals

Friday Feb. 23, 1872

Ther. 20. Max 26 Min 18.

Bar. 29.350 - Wind lt NW with
light snow fall - continuing all day

10 Bull. Bar. 29.200

Saturday Feb. 24

Bar. 29.125 Ther. 16. Max 18 Min 16

Strong NW wind cloudy with snow
Archimandritoff calls attention

to the rocks in Akutan Pass

& off Cape Nalekhta ^{5 miles} On

Tchenkoff's chart Tanaga or

the island west of it, is wrong in

longitude as the bearings do not

connect. There are several islands

in the Shumagin group which

are not down on any chart -

also one to the east of Nagai -

Lat. 54.49.30

Low 157.38, 45 miles east of Semenovskiy

seen by Capt May (?) -

The pass of Amukhta is 36 miles

wide on the chart of Tchenkoff

Archim. says it is 46 miles wide

The natives report a good

harbor on Iunisopochnoit, 20 -

Some say there are rocks

between Boguslova & Unnak

on which the surf breaks in

windy weather, but cannot

say definitely - Henny says not
he has sounded close to Unnak the volcano

- Henny says a port harbor with the pas-
sage to it dangerous from bad
tide rips & rocks.

Sunday Feb. 25

Ther. 16. Max 26 Min 13.5. Bar. 29.330
Wind light S. Sky half cloudy -
About 9 a.m. as the tide rises
and wind freshens a stream
of ice cakes from Captain's
Harbor poured into Shink
Harbor through Amaknak Str.
at the rate of 4 knots per hour.
As an excellent illustration
of the currents it may be
mentioned that not a particle
of it went out by the
north entrance where the
water backed up yet there
was no eddy there and
the only clear space was a
small strip at the mouth
of the creek & thence to the
n. entrance. The harbor
of Shink had been perfectly
free from ice but the low
temperature caused the cakes
to freeze together and at night
a very thick & strong coat of
ice covered the harbor.

Monday Feb. 26

Bar. 29.522, Ther. 18. Max 36 Min. 18.
Mod S wind. Sky nearly clear with
passing clouds. Being solidly frozen
in so as to prevent the passage of

a boat to the shore short of half
a days labor - we devote the day
to observations of equal altitudes
from the vessel. succeeding very
well -

P.M. - clear calm - 29.624

Tuesday Feb. 27

Ther. 24, Max. 32 Min. 24

Bar. 29.550.

St. Wind SE with light snow - Small
harbor ice bound. Cloudy - Later
snow turning into rain 9 P.M.
Bar. 29.480 - Wind SE fresh

Wednesday Feb 28

Ther. 31, Min 28, Max 39

Bar. 29.475 - Early A.M. Half
clear with fresh ENE wind. 8.30
A.M. wind freshens, and becomes
squally with sky over cast -
later rain & snow. Then wind
goes round to N squally and
finally to NW clearing off
a good deal. 10 P.M. bar. 29.388
Wind N with wet snow

Thursday Feb. 29

Wind strong North Ther. 35 Max 35 Min 33
Later NW with snow & rain a little
Bar. 29.300 Later 4 P.M. very strong
northerly Bar. 29.250 -

Friday March 1

Bar. 29.354 Ther. 33, Max 33, Ice breaking up
Very high strong NW wind - Cloudy

Saturday Mar. 2

Bar. 29.182, Ther. 31, Max 36 Min 31
Strong N.W. with driving snow
ice gradually breaking up -
P.M. & evening furious snowstorm Bar
came

Working days -

	Parts of	100 days in port	
Sept	6	6	5.25
Oct	14	31	9.00
Nov	15	30	12.00
Dec	10	31	6.50
Jan	4	31	2.75
Feb.	4	27	3.00
	53	158	37.40

159

25

136

3853

1155.9

38.50
119.50

18

23

38.50 bad working
weather

2.75

3.00

7.15

13.00

Sept

Dec

Bad weather on working days

.25

.50

.50

.75

.50

.50

.25

.25

.75

.50

2.00

.50

.25

.50

.25

.40

.25

3.1

.25

2.50

.50

Jan

.25

.75

.50

.50

2.70

1.25

2.3

4 Sundays

5.00

Feb

Nov

4 days

1.00

50

.50

50

.50

1.00

.50

385

2.00

1580

1155

2050

1925

125

385) 1580 4 1/7

4 days 1540

4 1/2 71

385) 1760 4 5/8

125

Sunday Mar. 3. 72

Bar. 29.498. Ther 29 Max 29 Min 25
Cloudy, fresh NW with half melted
snow

Monday Mar. 4.

Ther. 22. Max 25 Min 20 Bar. 29.370
Cloudy very strong NW wind. more
moderate with snow toward evening
Bar 10 P.M. 29.220

Tuesday Mar. 5.

Cloudy, strong N.W. wind with light snow
Ther. 27. Max 32 Min 27 Bar. 29.074
P.M. wind W. Bar. 10 P.M. 29.050

Wednesday Mar. 6.

Half cloudy. light ESE wind. Ther. 20
Max 42 Min 20 Bar. 29.070
8.30. P.M. Bar. 28.800 Wind E
foggy. spend afternoon taking angles
from ΔD . Evening wind shifting from N to NW

Thursday Mar. 7.

Morning cloudy. fresh NW wind, Ther. 32.
Max 42 Min 30 a little snow falls.
Bar. 28.600. Wind shifts from N to
SW all day. 10 P.M. wind light SW
clear, Bar. 28.775

Friday Mar. 8.

Cloudy, snowing lightly at intervals
Wind SW to S moderate. Ther. 26
Max 42 Min 36 Bar. 28.900
10. P.M. wind S by E moderate, clear,
Bar. 29.075

106

52

146

130

24

153

8

38

707 Western

293

36

47

71

49

105

27

105

99

47

61

480

46

940 middle at

214

123

337 Pint

124

346

470

West

337

707

940

2454

Saturday Mar. 9. 1892
 Ther. 35. Max. 49. Min 32. Wind
 variable, southerly, very light-
 with occasional fresh puffs-
 Sky half clear. Spend day
 taking angles from As B, A & K.
 Evening wind light SE. with
 one snow squall 10 P.M. Clear.
 Bar. A.M. 29.184. 10 P.M. 29.420

Sunday Mar. 10.
 Cloudy. Fresh SE wind. Ther. 32.
 Max 35 Min 32 Bar. 29.488.
 Storm brewing apparently -
 4 P.M. Heavy south east storming
 with rain comes on & lasts 3
 P.M. evening - ice in harbor breaks
 up - Bar. 29.3.00

Monday Mar. 11.
 Storm continuing but moderating
 Bar. 29.246. Ther. 38. Max 38 Min 35
 Wind squally SE. Heavy rain.
 Later less wind with showers of
 rain or hail at intervals P.M. & evening
 10 P.M. Bar. 29.320 Wind S by E

Tuesday Mar. 12.
 Cloudy with passing showers. Wind
 N SE. Stronger in puffs. Ther. 38
 Max 48 Min 37 Bar. 29.272
 2 P.M. Wind S with snow squall after
 mating fair. Work on telegraph - obser-
 vations about Amaknak. 9 P.M. Bar 29.840



Papoff 21

N E



Andronica



Korovin.

Shmids M. of Papoffsky
 from N of E end Unga half mile

Wednesday Mar 13, 72

Ther. 35 Max 38 Min 32 Bar. 29.940
Cloudy, squally, threatening rain - wind fresh
SE - Blows very hard - Try telemetric
obs. on SW side Anaktiak but
are driven in by snowstorm -
P.M. wind goes to NE + back to
SE with rain - 10 P.M. bar. 29.540

Thursday Mar 14

Ther. 42 Min 40 Max 36 Bar 29.476 -
Cloudy, rainy wind squally SE -
In 1868 a whaling vessel stove
in the ice off Cape St. Thaddeus
drifted ashore - in Sumner Straits
shortly after the ice passed out of the
latter - says Chapman - Also in 1871 late
in May ice broke up off Plover Bay
leaving the sea navigable there and
by the middle of June any vessel might
have sailed there had she been able
to get through the floe ice to the S.W.
The ice opens sooner on the W side
of St Lawrence Id than on the E + SE
Bar 10 P.M. 29.620

Friday Mar 15

Ther. 38 Max 48 Min 36 Bar. 29.800
Wind S fresh. passing clouds with
snowflurries occasionally but light &
short. Work for tele. on SE side Anakt-
iak all day - P.M. cloudy wind SSE
8 P.M. Bar. 29.810

Saturday Mar. 16. 1872

Ther. 36. Max 49 Min 36 Bar. 29.720

Fair, with passing clouds. Wind S. 2.65 on telescope coincides with 9.5 on staff. Then level center of telescope is 6 ft. 2 $\frac{3}{4}$ in above 9.5

1 { 541 E. 41 $\frac{1}{2}$ S. 172 $\frac{1}{2}$ is marked by middle wire on bench - Theodolite center at this station is 16 $\frac{1}{2}$ in above it.

2 { Next station 162 $\frac{1}{2}$ middle wire 563 E 70 B - on ground between old Albatross middle wire at this station 9 $\frac{1}{2}$ in above 142.0

3 { (angle 100 m. line 104 $\frac{1}{2}$ E 42 B) end of track $\frac{1}{2}$ in below that of last Δ at this one on grass - flat

4 { Next middle 265 563 $\frac{1}{2}$ E. 62 B. 14 ft line. clothes line

5 { 4 ft 8 $\frac{1}{4}$ in. 65 $\frac{1}{2}$ E 40 B. Just beyond Herring house - 110 $\frac{1}{2}$ in church NW corner 58 $\frac{1}{2}$ E (45 B)

210 G 6 $\frac{1}{2}$ in above bench mark

Sight to bench 49 $\frac{1}{2}$ B. Vert 5.59' / 15 ft 3 $\frac{3}{8}$ in N 22 E. Alt. Rev. 4.34' of bench mark 16 B. Vert. 12.7'

Take a set of altitudes for time in A.M. recording for Herring ton. Then calculate the bench marks as above. P.M. run the line of the beach with telescope to Albatross Δ and return to altitudes

But we are prevented from obtaining the rest by clouds - Day partly fair - with one heavy snow squall at noon. Passing clouds in P.M. & A.M. - closes cloudy - 9 P.M. bar. 29.700 wind SE

$$\begin{array}{r} 6 \text{ ft } 1 \frac{3}{4} \text{ in} \\ 1 \text{ } 1 \frac{3}{4} \text{ in} \\ 0.9 \frac{3}{4} \text{ in} \\ \hline 8.2' - \frac{1}{2} = 8.1 \frac{1}{2} \end{array}$$

$$\begin{array}{r} 15.735 \\ 1.125 \\ 9.975 \\ 4.650 \\ 4.225 \\ \hline 26.04.0 \text{ above zero} \end{array}$$

$$\begin{array}{r} 15.436 \\ 6.340 \\ \hline 21.0056 \end{array}$$

$$\begin{array}{r} 4.7 \\ 4.8 \frac{3}{4} \\ \hline 17.5 \frac{1}{4} \\ 6 \frac{1}{2} \\ \hline 16.10 \frac{1}{2} \text{ above 9.5} \\ 9.06 \\ \hline 26.04 \end{array}$$

Bench mark on church is above 0 of staff 26 ft. 04 in Same is above our bench mark on rock Plumlink Harbor 13 ft. 04 in

Height of Church mark above 6 ft $\frac{3}{4}$ in staff approximately = 15 ft. 416 by water level less reliable than the other

Sunday Mar 17

Cloudy Ther. 36. Max 47 Min 34
Wind lt. SE - Bar. 29.722
Wind later goes to NW strong
and by evening to SW squally
Bar. 10. P.M. 29.840

Monday Mar 18

Ther. 34. Max 37 Min 20. Cloudy
A.M. wind lt. S. freshens toward
noon P.M. SE squally day strong
speed day finishing angles in
small harbor. P.M. Bar. 29.720
Night overcast rain strong SE.

Tuesday Mar 19

Ther. 38. Max 59 Min 28 Bar 29.875
Clear - light SE wind. Speed of all
part of P.M. on observations of
equal altitudes for time. Day
fine, wind moderating early
After in P.M. cloudy calm or
light SE wind. 11 A.M. Bar. 29.280
Heavy rain.

Wednesday Mar. 20

Ther. 38. Max 45 Min 34 Bar. 29.810
Cloudy, rainy, nearly calm. P.M.
Cloudy with light showers. 29.474
Take up thermometer buried Feb. 9
and find a max Min temp
of 32° for the earth during
the intervening period. 2½
feet below the surface.

Thursday Mar. 21, 1872

Ther. 33. Max 49. Min 32. Bar 29.450. Morning, cloudy, wind very light, variable. 10. All clear, day very fine. Clear & calm. Obs. of sun for time & getting ready for sea.

Friday Mar. 22, 1872

Morning Ther. 34. Max 38. Min 32. Bar 28.942. Raining & snowing hard. Wind squally & later, moderates a little but continues squally all day. P.M. bar. 28.800 Wind L.S. nearly clear.

Saturday Mar. 23

Ther. 38. Max 42. Min 33. Bar. 29.150. Cloudy wind SW afterward W. Reef off Kaituma in and with N.E. and Unalga bearing East. Priest rock bearing S reef bears S.W. Kaituma bears E.N.E. Concordia S. 2 head Kaituma bay S.W. to Constantin. The bay both for day from Unalga bear S.W. by W. 2 W. In head of Kaituma Bay to line W. Peak off. Island outside of the fjord not on chart.

Sailed at 8 A.M. for Coal Harbor Unalga Is. for a load of Coal, to through Unalga Pass. 10 P.M. Bar. 29.500.

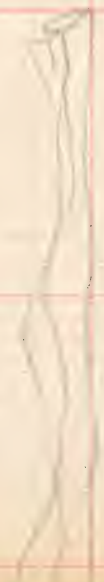


40

41

42

Unalga bearing WSW 2 W



43

Sunday Mar 24

Morning cloudy with N.E. fresh. Ther 37. Max 42. Min 37. Bar. 29.520
See the peaks of Bismark in the distance - The current takes us some 25 miles to the Swan Pt. Clear fine. Evening abate. Bar. 29.480 Sea rough -

Monday Mar 25

Bar. goes down to 29.000. Temp 37. 39. 37. Gale from NE with hail & high sea. Hove to all day & next night.

Tuesday Mar 26

Clears early in am. light NE wind & high sea. Bar. 29.150. Ther 40. 42. 40. About noon nearly a calm, almost clear - sea goes down a good deal -

Wednesday Mar 27

11 P.M. last night light air sprang up & still continues - Ther. 54. 40. Bar. 29.300. Cloudy - fair - P.M. fresh breeze from NE at 12 midnight hove to.

Thursday Mar 28

NE gale, hove to all day by night. made sail under double reefs. Bar. 29.000. Ther. 40. Night wind NE

Friday Mar 29

Under single reefs fresh SE wind

Sat. 29.050. Ther 42. Stand on until
 wind freshens & comes on thick &
 rainy when stand off 2 by 10 to avoid
 running on to the land in case of a
 beaster. About 2 P.M. sight land
 in NW & stand towards it. but
 see little until 3.30 P.M. when it
 clears & we see two small islands
 rocks or tops of peaks 
 bearing W.N.W. Cannot identify them
 and taking three sets of observa-
 tions. Just we have been swept
 by the current more than sixty
 miles to the westward. P.M. pretty
 clear. Clouds up after sunset &
 bar sticks at 29.075 up to 7 P.M.
 Remain on deck all night and
 sight Unga about 2 a.m. of

Saturday Mar. 30th.

and shortly after make Nagai.
 Boat until 4.30 A.M. and then
 stand in, past Delaroff Harbor
 west of Popoffsky through the nar-
 row passage between that island
 and Unga. In the straits after
 passing the sand spit, the channel
 is in a direct line from the end
 of the latter to the outer end
 of the small island between
 Popoffsky & Unga. There is a

F. A.

 NW by S 3 miles
 make off Unga

reef on each side; after passing
the point on which the western
reef is situated, it may be well
to shear a little to the westward
still steering for the small is-
lands western end - $5\frac{1}{2}$ fms
are the shoalest. There is a
small harbor formed by
the sand spit.

Passed through and stood into
Coal Harbor finding the reefs
laid down on the chart as
weedy shoals - out of water
about a foot - stood into
new Harbor and anchor there
Came in about 11 A.M. and
anchor about 2 P.M.

Day fine cloudy with squalls
of snow & high southerly wind.
Later stormy - Bar. 29.850
Ther. 40 to 44.

Sunday Mar. 31, 1872

Cloudy, stormy southerly wind
Bar. 29.200 - Ther 42 Max 42
Min. 40

Held a consultation with the
officers and decided to give
up the proposed trip to the
westward - on account of
the defects of the vessel in
working and the great risk

which would thereby be incurred. Decide to do as much as we can in Unalakleet and come to the Shumagins to spend the rest of the season.

P.M. Windy & cloudy Bar. same.

Monday April 1. 1872

Bar. 28.610. Ther. 36 Max 38

Min. 34

Heavy NE gale. with half melted snow. P.M. moderates a little but Bar. goes down to 28.450

Tuesday April 2

Bar. 28.634. Ther. 38. Max 46.

Min. 36. Light NW wind cloudy

P.M. with faint & snow squalls

All hands busy getting out coal

Bar. 28.610 Wednesday April 3

All hands go for coal. Having

ten & I work over observations

for dip and latitude & longitude

on the last point on Brown's Island

Bar. 29.701 Ther. 32. 43. 32.

Bar. 29.701. 29.850 observe

tide high in A.M. at 2.30

mean time lowest 4.25 P.M.

below highest high water mark

on rocks 7 ft 2 in below low

of A.M. four feet nearly

Magnetic meridian 70.24

on dip circle. P.M. a snow

Working days in Mar

.50

1.00

.50

.25

1.00

1.00

1.00

1.00

1.00

1.00

30

425

squall interrupts work on
equal altitudes. Day windy - W & S

Thursday April 4

Caton reports a heavy storm
from E & S which accounts
for our low barometer.

Bar. 29.640. Ther. 36 Max 42
Min 36. Stormy & rainy. Wind
from S W to S E. Temp. of water
at 6 fms deep last night 37. deg.
P.M. rainy, High S E wind.
Bar. 9 P.M. 29.282

Friday April 5

Heavy Southeaster cloudy
all day. Bar. 29.600. Ther. 40.
40. 34. all hands mining coal.
Rain and hail in squalls

Saturday April 6

Heavy Southeaster all day with
hail & rain squalls. Ther. 34.
35. 32 Bar. 29.920. Evening
wind shifts to NW. Bar. 30.420
Shipping coal.

Sunday April 7

Strong W wind all day heavy
gale. Ther. 32. 35. 22. Bar. 30.
334. Cloudy.

Partly of sun in P.M.

Monday April 8

Bar. ~~30~~ 30.254. Ther. 28. 42. 36.
Cloudy, wind lighter. Fresh in



the P.M. Magnetic observations
on Round Island A.M. & P.M.

Tuesday April 9, 1872

Morning moderate, take in some
chain when wind freshens &
we conclude not to go to
sea - Wind SW fresh to very
strong - cloudy & clear at short
intervals - Ther. 41. 45. 32 -

Bar. 30.000 - P.M. heavy snow
squalls lasting an hour & a half
followed by clear & calm weather
& then cloudy - 9 P.M. Barometer
at 30.050

Wednesday April 10

Wind fresh SSW to NW - Temp.
40. 41. 39. Bar. A.M. 30.150. Cloudy
we are obliged to wait for a
fair wind as this is right in
our teeth. P.M. bar. 30.120

Thursday April 11

Wind from SW to S squally all
day - Temp. 40. 42. 38. Bar. 30.100
Evening breezes up with heavy squalls
& rain from SSE. Bar goes down
to 29.864 at 9 P.M.

Friday April 12

Heavy SW wind still blowing
Ther. 38. 39. 35. Bar. 29.750 -
Cloudy & sunshine by turns
with rain & snow squalls

Saturday April 13.
Morning moderate wind SSW. 11-
noon breezes up from South
P.M. strong SSE, gale by
9 P.M. Ther. 40. 42. 38.
Bar. 30.122. 9 P.M. Bar.
29.864.

Sunday April 14
Cloudy early A.M. nearly calm
then breezes up as it has done
every day for a week, into
half a gale from S. with
squalls of rain or snow. Ther.
38. 45. 38. Bar. 29.802. 9 P.M.
Bar. 29.660.

Monday April 15.
Morning Cloudy high SSW winds
Ther. 40. 46. 39. Bar. 29.808 - Spend
day running coast line of New
Harbor with telemeter. Bar. 9 P.M.
29.486. Wind fresh from SSE
One heavy snow squall in P.M.

Tuesday April 16
Rainy & snowy all day. All
wind light. Later NE P.M.
calm. Ther. 37. 37. 35. Bar.
A.M. 29.234. 9 P.M. 28.920.

Wednesday Apr. 17
Strong N wind. Sail from
Coal Harbor at 8 A.M. &
go around Unga by the



New Harbor

western passage instead of
beating through the other way
Ther. 35. 37. 31. Bar. 29.020
On leaving the E side of Unga
a heavy NW gale comes on
and after struggling against
it for some time we are
obliged to leave to after
shipping one sea which
nearly filled her forward
stern, snow later on
comes out but obliged to
stay to till midnight.

Thursday April 18

Morning - Ther. 35. 37. 32 Bar
29.140 - Wind strong NW
jiffy along under reefed tops
Cloudy - P.M. wind lighter at
W. Evening very light - Bar. 29.220

Friday April 19

Morning pleasant, wind light SW
half cloudy - Ther. 34. 37. 30. Bar. 29.100
Noon squally with snow - P.M.
Half cloudy squally - Bar. 29.216

Saturday April 20

Morning cloudy, nearly dead calm
Ther. 37. 37. 32 Bar. 29.260
same weather as yesterday but
wind made a little force in P.M.
Bar. 29.360

Sunday April 21, 1872

Ther. 41, 44, 35. Bar. 29.500 - Half cloudy, wind moderate, west. After meridian stand on a pretty fair course towards the Cikulah pass.

Monday April 22

Ther. 37, 42, 34. Bar. 29.505. Half cloudy 2 miles off Priest Rock S.W. half west 35 fathoms E end of Cikulah bearing E half north. Wind light SW & SE. P.M. off Captain's Bay - dead calm.

Beached off Captain's Bay Priest Rock bearing S $\frac{1}{2}$ W

Casual W side do SW

E Chika 92 E by S

Sound in 59 fms soft bottom

Under 4 fms water at 53 fms water 25 38
28 36

Surface temp. 11.0, 13.591

Bottom 13.599

Am 114. Surface water 38

Evening - SE wind quite fresh beat in and anchor about 11. P.M.

Tuesday April 23

SE storm with rain. Bar. 29.398

Ther. 43, 38 P.M. SW with very heavy squalls. Bar. 10 P.M. 29.500



Middle Amukma

Wednesday Apr. 24-72

Ther. 41. 42. 38 - Bar. 29.684
Cloudy with high squalls rain
& snow from S.W. - Noon
Calmer, Bar. 29.500 - 10 P.M.
Bar. 29.500 high S.E. wind
rain & squalls.

Thursday Apr. 25

Ther. 41-44. 34 - Bar. 29.626
more moderate but very similar
air weather, Cloudy with strong
squalls at intervals from S.W.

Friday April 26

Ther. 42. 46. 36 - Bar. 29.828
Weather similar to yesterday but
evening more moderate

Saturday April 27

Ther. 37. 49. 34. Bar. 29.772
Cloudy calm - snowing lightly.

Sunday, April 28

Ther. 34. 47. 32 - Bar. 29.740
Day half cloudy - calm & fine
wind in P.M. light S.E. P.M. Bar. 29.784

Monday, April 29

Ther. 35. 47. 33 - Bar. 29.784
Clear calm fine, a little thin
ice formed last night on small
harbor - Observations for time
A.M. & P.M. Telemeter observa-
tions on Blindly reef P.M.
1/2 cloudy wind N.W. 4.13 a. 29.852



Tuesday April 30th 1872

Ther. 36-38 34. Bar. 29.900
Cloudy, some hail squalls. Wind fresh
NNW. Later heavy snow storm
9 P.M. Bar. 30.000.

Wednesday May 1, 1872

Ther. 35-42. 32. Bar. 30.060.
Cloudy, snowing. Wind light W.
Snows all day. P.M. Bar. 30.166

Thursday May 2

Ther. 37-42. 32. Bar. 29.984
Cloudy snowing lightly at intervals
Calm. P.M. wind fresh SE
Bar. falling, more snow. Evening
SE very strong with melting snow
Bar. 29.624.

Friday May 3

Ther. A.M. 37-44. 35. Cloudy some
rain. Bar. 29.200. SE wind fresh
with calm intervals. Observations
on the tidal current setting in through
Sarnaknek straits develop the
fact that it runs at about the
rate of 3 knots an hour. The
float passed over a line 270 feet
long in one minute when the
flood tide was coming in with
its greatest rapidity.

Capt. Hannig in the Hutchinson
in 1869 bound for St Michaels
in June encountered field ice

in the latitude of Cape Romangoff
and about half way between
the main land and the islands.
It was in a band about 100
miles broad extending east &
west to St Lawrence & Cape
Romangoff. At the same
time Captain Smith went
to the westward of St. Law-
rence and found all clear
of ice. Capt Hennip after
passing through this ice
which was very soft &
rotten found clear water
to the north of it. P.M. Bar
29.330 Wind light S. half clear

Saturday May 4.

Ther. 36. 54. 42. Bar. 29.450. Cloudy
calm. Later P.M. S.E. light.

Capt Giles informs me that the south-
ern entrance of Lianovsky pass though
narrow is very deep, at least 50 fms
without bottom. a few rocks close
in to the east head. The tides run
very swiftly in this passage, the
flood tide from the south is always
more powerful than the reverse.
The northern entrance is very
shoal, the channel is close to
the Unimak side and is often
changed or even closed for a

short time by the drifting sand
which forms the bottom, when
heavy northers occur. There is
about one fathom water in it
the sloop Lakes Howes drawing
4 feet 2 in had gone through, &
the Lizzie then drawing 3 feet 6 in -
He did not think the Humboldt
drawing eight feet could get
through. The tides resemble
those of Unalaska. There are
no tide rips. P.M. Bar. 29.600
Visit and repair signals.

Sunday May 5

Ther. 42.52.38.100 Wind SSE. Heavy
rainstorm with fresh squalls all
day - P.M. Bar 29.580

Monday May 6

Ther. 38.46.41. Bar. 29.144. Wind
SE - heavy rain & squalls all day
a little more moderate in P.M. Bar. 29.162

Tuesday May 7

Ther. 36-48.41. Bar - 29.164

Half cloudy calm with showers
in early am. later half clear with
SW puffs or squalls at intervals.
Spent the whole day sounding
in Blink Harbor and its approaches

Wednesday May 8 P.M. Bar. 29.400

Bar. 29.522. Ther. 39.48.36. Wind
Squally southeast with rain. P.M.

rain ceases and I go out and
repair various signals which have
suffered from the weather. Evening
SE wind fresh, with rain. 29.450

Thursday May 9

Ther. 46. 53. 38. Bar. 29.440.

Cloudy with a little rain, calm
Finnish soundings in small harbor
P.M. Seleniter observations on the
reef near D and on the East side
of South Amaknak Straits.

It begins to rain about 3.30

P.M. - but we continue at work

till 4.30. P.M. wind light NW. Bar

9. P.M. 29.425.

Friday May 10

Ther. 36. 49. 43. Bar. 29.380

Cloudy, foggy, with fine rain, wind
light NW. Rain continues all
day - P.M. wind W. lt. 9 P.M. Bar. 29.720

Saturday May 11

Ther. 36. 52. 41 - Bar. 29.820

A.M. cloudy light S wind. P.M. half
clear, fresh SE wind. Seleniter
observations on Uvalashka and
S Amaknak rocks, occupy the
day. 9. P.M. Bar. 29.870

Sunday May 12

E.S.E. storm with snow, rain heavy squalls
Ther 37. 42. 35. Bar. 29.270 - Now moder-
ates, and finally dead calm cloudy 28.950

Monday May 13, 77

Ther. 42. 45. 36. Bar. 29.054. Wind
NW fresh with rain. Toward
noon very high squalls with
heavy rain and snow. P.M.
raining, more moderate wind SW.
Bar 9 P.M. 29.460.

Tuesday May 14

Ther. 35. 40. 32. Bar. 29.468 Stormy
snowing furiously. Wind W. at noon
changes to SW. Evening wind high
cloudy. Bar. 29.760.

Wednesday May 15

Ther. 35. 45. 33. Bar. 29.634. Strong
high west wind with clouds. P.M.
a little more moderate but wind still
high. Magnetic observations for
dip & intensity. Bar 9 P.M. 29.500

Thursday May 16

Ther. 38. 52. 33. Bar. 30.050. Cloudy strong
north wind. At work on W side Am-
aknak Island with theleveter all
day. Moderates toward evening
Bar. 29.980.

Friday May 17

A.M. Ther. 39. 47. 35. Bar. 29.788
Cloudy light snow falling at inter-
vals, with light N.W. wind.

Saturday May 18

Ther. 37. 45. 40. Bar. 29.810. Take myths
from SA 1 albatross wild driven in by snow

In Caesarevitch

May 2 Rocks, seen by him in Lon. 158. 50 W
Lat 55. 15 N
differs from Admiral's position

Wind N. with snow squalls all day. Cloudy. Bar. 9 P.M. 29.820

Sunday May 19, 1872

Ther. 37-42.35. Bar. 29.840. Cloudy strong N.W. wind. P.M. bar. 29.754
Copy from Capt Mays log

Lat. noon June 25. 1869 - 54.21' Chocomaou Id. bore N.W. by N by compass dist 25 miles - Course N.E. - Lon. 159.21'.

June 26 -

8.30 P.M., made two rocks above water bearing N.W. by compass dist about 8 miles - ~~(5.55)~~ - Lat. about 55.15 + long about 158.50. Began fresh breeze from S.W. later 6 P.M. wind moderate, hazy - (running an average of 5 knots) changed course on to S.E. - vessel ship Caesar Wilch
Rocks appear doubtful

Day squally with snow & rain at intervals

Monday May 20

Ther. 42-45.35. Bar. 29.748. Cloudy & snowsqualls with northerly wind in A.M. P.M. more moderate - angles from Albatross station & running shore line to Stillwater - interrupted by snow. Bar. P.M. 29.840.

Tuesday May 21

Ther. 39-44.34. Bar. 29.810 Cloudy

light W. wind. Start for North
Head signal and finish the angles
from that point & run the
shoreline of half of Indian
Bay. Weather rather quiet
fresh West wind but little sea
and constant clouds of heavy
fog keep coming up withing
every thing so that we have
to stop observing at last.

P.M. 29.742

Wednesday May 22

Cloudy, light W wind heavy soft rain
pouring down steadily. Ther. 41.46.37
Bar. 29.510. P.M. Bar. 29.498.

Thursday May 23

Wind shifts to East with a fresh
puffy wind, heavy steady rain
& fog. Ther. 37.46.42. Bar. 29.562
9 P.M. Bar. 29.664.

Friday May 24

Wind light 252 all day - with
a constant succession of light show-
ers but no fog. Ther. 37.52.46.

Bar. 29.720. 9 P.M. Bar. 29.886

Saturday May 25

Ther 43.49.39. Bar. 29.888. Clear
calm, about noon light N air later
fresh NW. Work all day running
shoreline on north side of Ulakhta
head and in Indian Bay. Evening.
Bar. 9 P.M. 29.946. Clear.

Sunday May 26, 1892

Ther. 46. 58. 37. Bar. 29.900 - sky
cloudy - calm. Noon clear light
northw. wind - changes in P.M.
to W & SW - rather fresh - half
cloudy - Bar. 9 P.M. 29.882
Obs. for time in P.M.

Monday May 27

Ther. 48. 50. 40. Bar. 29.934. Clear
Obs. for time. Light N wind, fresh
at intervals. A fog bank in
the north but not a cloud
all day. - Topographical
work with theodolite on
Middle Amaknak & the
P.M. obs. for time take up the
day. Bar. P.M. 29.918 - Clear
calm -

Tuesday May 28

Ther. 38. 44. 60. Bar. 29.878. Clear
light N.E. air with occasional fresh
puffs. Later in day a few light
clouds and wind shifts more to
the eastward. Angles from Still
water station in A.M. completed
in P.M. from Keystone station
also completed. Evening light
S.E. breeze - nearly clear. Bar 29.800

Wednesday May 29

Cloudy, rainy wind E. Ther. 44
54 42. Bar. 29.724. P.M. NW

Riedell -

Thermometers - Tide book -
Rain gauge - Receipt -
Raymond's maps of Yukon -
Smith
Time clock.

so rainy, squally, wind shifts to N
with heavy black clouds. Plotting
all day. P. M. Bar. 29.722

Thursday May 30

Ther. 43. 48. 41. Bar. 29.722

Cloudy, some rain, strong NW
wind. Squally, shifting to
WNW at night. Bar 9 P.M.
29.880. Plotting all day

Friday May 31

Ther. 43. 47. 41. Bar. 29.825. Cloudy
with squally NW wind and occa-
sional rain squalls. P. M. run
the shoreline of Amaknak from
Ulahtu to Roundtop. 9 P.M.
Bar. 29.864

Open new notebook

Work to be done

Copy notes 1st book	✓ Done ✓
4 2nd "	✓ " ✓
Copy angles in book	✓ " ✓
+ abstracts	✓ " ✓
Draw signals made up	✓

Δ Computations.	✓ Done ✓	✓
-----------------	----------	---

Outside tidal obs.	✓	
--------------------	---	--

Plotting temps & barometer	✓	
-------------------------------	---	--

Plotting currents	✓	
-------------------	---	--

copy eng obs in 4th	✓	
---------------------	---	--

Plotting angles	✓	
-----------------	---	--

Copy tel. obs.	✓	
----------------	---	--

Sketches headlands.		
---------------------	--	--

Tidal obs.	Therlink complete	
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Magnetic obs.	2 times ✓	
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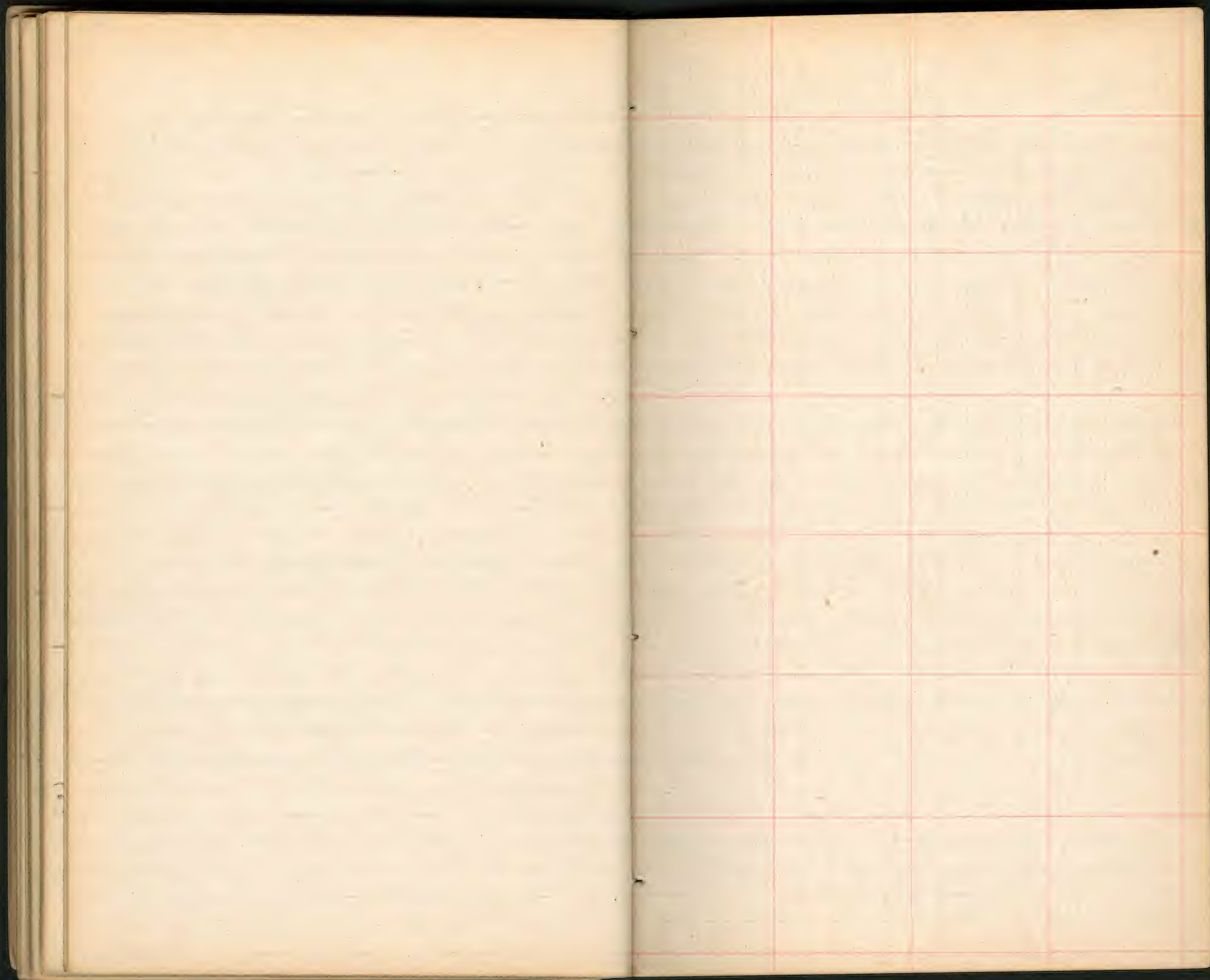
cut in benchmark.	✓	
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Copy tidal table.		
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Plot rem. of Therlink chart.		
------------------------------	--	--

write out ethnol.		
-------------------	--	--

Soundings. Copy		
-----------------	--	--



Copying

Angles. copied to Dec. ^{max} with abstracts do.
Notes " " Jan. - Feb. - Mar.
Meteorology in book to Mar. - 4m sheets
Current obs. in comp. book. in 4th copy for notes
in rough plotting on chart.
Tides (Registers overhauled to Jan. - Mar.
completed)
Water temp. Copied into 4th book & in log.

○ Going over charts with Hennig.

○ Meteorological data from priest.

Topographical sketches.

1 Copying sketches of headlands
✓ Saw. 16.

✓ deep sea leads to be got ready.

✓ other dredge to be got ready.

○ ✓ Packing up remainder of collections.

Anglo. Prepare book for new ones.
✓

○ ✓ Telemetric obs. + soundings
small harbor.

○ See Gregoire about Aleut names.

Outside tidal observations. ✓ ○

Erecting new signals. Eider vill

~~Remove small base.~~

✓ Correlate bench marks + have
my own cut in. ○

1 ? Current observations in mouth
of small harbor. ○

○ Repair barometer

Magnetic observations

Work to be done
Notes to be copied to date
to Dec 31. Fl. To Feb 9 Mar 1.

✓ Descriptions of signals.
to Jan 20.

✓ Computations of triangles.
✓ Dec. 31.

✓ Computation of tidal register
Oct. Nov. Dec. Jan.

Plotting temperatures & barometer
Rough notes to Dec. 31, cont.

✓ Plotting current chart ✓
Rough notes of upvoyage ✓

Plotting ordinals of currents.
✓ Rough notes of upvoyage.

○ ✓ Plotting angles & topography.

○ ✓ Overhauling & signing tidal
register.
overhauled to Dec. 21.

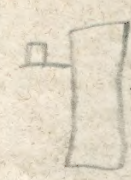
Pay rolls ✓ to March 31 st. ✓

60
9
1 3 5 7 9 594
2 4 6 8 57 8 651
17
16 27 42 594
800 180 160 43.4
229447 174 300
999996 273.4
449 36
160 434 320 29 140
920654 114 734
365 50 400 48 1/2
365 50 400 48 1/2
94 88 6
11 584 52 30 97 323
55 34 33 00 70 651
34 33 00 70 646
5
42 22 55 12 51 70
99 15 40 12 51 70
107 24 40 12 51 70
48 23 20 12 51 70
337 43 20 12 51 70
240 1532 170 1702
1532 170 1702
Rupe 4.70
George 1.50
Rpt 1.50 Bindel
n 6



$$\begin{array}{r} 24 \\ 80 \\ \hline 1920 \end{array}$$

$$\begin{array}{r} 130 \\ 24 \\ \hline 520 \\ 260 \\ \hline 3120 \end{array}$$



$$\begin{array}{r} 594 \\ 160 \\ \hline 434 \end{array}$$

$$\begin{array}{r} 2 \overline{) 160} \quad 18 \\ \underline{9} \\ 70 \\ \underline{68} \\ 2 \end{array}$$

$$\begin{array}{r} 93 \\ 13554 \\ \hline 13847 \end{array}$$

$$\begin{array}{r} 21 \\ 434 \\ \hline 300 \\ 134 \\ \hline 734 \\ \hline 17 \end{array}$$



$$\begin{array}{r} 90309 \\ 94961 \\ \hline 190270 \\ 59763 \\ \hline 546 \end{array}$$

$$\begin{array}{r} 39 \overline{) 170} \\ \underline{3822} \\ 7200 \\ 546 \end{array}$$



